2004 STANDARD DRAWINGS

http://www.udot.utah.gov/index.php/m=c/tid=728

Change 3, November 23, 2004

Memorandum UTAH DEPARTMENT OF TRANSPORTATION

DATE: November 23, 2004

TO: Region Directors
Project Engineers
Project Design Engineers
Project Managers
Consultants and Contractors

FROM: Barry Axelrod, CDT
Standards and Specifications

SUBJECT: Standard Drawing [U.S. Standard Unit (Inch-Pound Units)] Change 3 Dated November 23, 2004

A new index and updated drawings are attached. Please take the following action with respect to the attached pages.

REMOVE	**INSERT**
Cover	Cover - revised for Change Three
N/A	Memo - Insert after cover
Index	Index - revised
N/A	Listing of Revised Standard Drawings, Change Three
Sheet 1B	Sheet 1C – revised
Sheet 1C	Sheet 1C – revised
CB 1	CB 1 – revised
CB 2	CB 2 – revised
CB 3	CB 3 – revised
CB 4	CB 4 – revised
CB 5	None
N/A	CB 5A – new
N/A	CB 5B – new
CB 6A	CB 6A – new
CB 6B	CB 6B – new
CB 6C	None – deleted
CB 6D	None – deleted
CB 6E	None – deleted
CB 6F	None – deleted
CB 6G	None – deleted
CB 6H	None – deleted
CB 7	None – deleted
N/A	CB 7A – new
N/A	CB 7B – new
N/A	CB 11 – new
N/A	DB 4 – new

DG 3	DG 3 – revised
DG 4	DG 4 – revised
N/A	GF 13 – new
N/A	GF 14 – new
N/A	GF 15 – new
SN 12A	SN 12A – revised

Electronic files for all Standards Drawings are available on the Internet from the "2004 Standards" Web page, under "2004 Standard Drawings." Individual files are available in Microstation DGN format for download individually or by Series from the "2004 Individual Standard Drawings" link. The Series files are zipped in an EXE file. The entire set of drawings is available in Adobe pdf format from the same area at the "2004 Current Drawings" link. None of the on-line files in either DGN or PDF format have signatures.

If you have any questions or problems with the electronic files contact me at 801-964-4570 or by email at baxelrod@utah.gov.

STANDARD DRAWINGS INDEX (Change 3, Dated 11/23/04)
UTAH DEPARTMENT OF TRANSPORTATION
(**Current Date for latest change in bold**)

	NUMBER	TITLE	CURRENT DATE
		Advanced Traffic Management System (AT)	
	AT 1	Legend Sheet	03/15/04
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	AT 3	Ramp Meter Sign Panel	04/29/04
	AT 4	Typical Ramp Meter Signal Head Mounting	03/15/04
	AT 5	Loop Installation	03/15/04
	AT 6	Conduit Details	03/15/04
	AT 7	Polymer-Concrete Junction Box Details	03/15/04
	AT 8	ATMS Cabinet w/120V Disconnect	04/29/04
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	BA 1B	Precast Concrete Full Barrier Standard Section	03/15/04
	BA 2	Precast Concrete Half Barrier Standard Section	08/26/04
	BA 3	Cast In Place Constant Slope Barrier	03/15/04
	BA 4A	W-Beam Guardrail Hardware	03/15/04
	BA 4B	W-Beam Guardrail Transition With Jersey Barrier Shape	03/15/04
	BA 4C	Not Used	

	NUMBER	TITLE	CURRENT DATE
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	BA 4E	W-Beam Guardrail Installations	04/29/04
	BA 4F	W-Beam Guardrail Typicals Divided Roadways	03/15/04
	BA 4G	W-Beam Guardrail Typical Multilane Arterial	03/15/04
	BA 4H	W-Beam Guardrail Typical 2 Lane 2 Way	03/15/04
	BA 4I	W-Beam Guardrail Buried In Backslope Terminal	03/15/04
	BA 4J	W-Beam Guardrail Buried In Backslope Terminal With Rub Rail	03/15/04
	BA 4K	W-Beam Guardrail Buried In Backslope Terminal Anchor	03/15/04
	BA 4L	W-Beam Guardrail Curve Details	03/15/04
	BA 4M	W-Beam Guardrail Nested Guardrail 12’ 6” Span	03/15/04
	BA 4N	W-Beam Guardrail Nested Guardrail 18’ 9” Span	03/15/04
	BA 4O	W-Beam Guardrail Nested Guardrail 25” Span	03/15/04
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	CB 2	Open Curb Inlet	**10/21/04**
	CB 3	Shallow Catch Basin	**10/21/04**
	CB 4	Open Curb Shallow Catch Basin	**10/21/04**
	CB 5A	Standard Catch Basin and Cleanout Box	**10/21/04**
	CB 5B	Standard Catch Basin and Cleanout Box Section	**10/21/04**
	CB 6A	Drop Inlet Type “A”	**10/21/04**
	CB 6B	Berm Apron Detail With Drop Inlet Type “A”	**10/21/04**
	CB 7A	Drop Inlet Type “B”	**10/21/04**
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	NUMBER	TITLE	CURRENT DATE
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	DB 2G	Standard Diversion Box Hinged Lid Solid Cover Type "B" Details	03/15/04
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	DB 3A	Standard Diversion Box With Manhole Cover Situation And Layout	03/15/04
	DB 3B	Standard Diversion Box With Manhole Cover Up To 42" RCP And Up To 54" CMP	03/15/04
	DB 3C	Standard Diversion Box With Manhole Cover 48" to 72" RCP And 60" to 84" CMP	03/15/04
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	DD 2	Surface Ditch, Benched Slope, And Cut Ditch Details	03/15/04
	DD 3	Climbing Lanes	03/15/04
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	DD 6	Entrance And Exit Ramp Geometrics	03/15/04
	DD 7	Freeway Crossover	03/15/04
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	NUMBER	TITLE	CURRENT DATE
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	DG 4	Pipe Minimum Cover	**10/21/04**
	DG 5	Plastic Pipe, Metal Pipe Or Pipe Arch Culvert Bedding	03/15/04
	DG 6	Precast Concrete Pipe Culvert	03/15/04
	DG 7	Gasketted Joints Or Coupling Bands For CMP	03/15/04
	DG 8	Metal Culvert End Sections	03/15/04
	DG 9	Miscellaneous Pipe Details	03/15/04
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	FG 1B	Right Of Way Fence And Gates (Wood Posts)	03/15/04
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	FG 6	Chain Link Fence	03/15/04
		Grates, Frames, And Trash Racks (GF)	
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	NUMBER	TITLE	CURRENT DATE
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	GF 3	Rectangle Grate And Frame	03/15/04
	GF 4	Directional Flow Grate And Frame	03/15/04
	GF 5	Solid Cover And Frame	04/29/04
	GF 6	Manhole Steps	03/15/04
	GF 7	Standard Screw Grate And Frame	03/15/04
	GF 8	2’ x 2’ Grate And Frame	03/15/04
	GF 9	28” x 24” Directional Flow Grate And Frame	03/15/04
	GF 10	Standard Trash Racks 90 ° X-ing Angle	03/15/04
	GF 11	Standard Trash Racks	03/15/04
	GF 12	Standard Trash Racks	03/15/04
	GF 13	Open Curb Inlet Grate and Frame	**10/21/04**
	GF 14	Solid Cover For Std Dwg DB 1 MS-18 Loading	**10/21/04**
	GF 15	Standard Screw Gate And Frame	**10/21/04**
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	GW 2	Concrete Curb And Gutter	03/15/04
	GW 3	Concrete Curb And Gutter Details	03/15/04
	GW 4	Concrete Driveways And Sidewalks	03/15/04
	GW 5A	Pedestrian Access	08/26/04
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	GW 5C	Pedestrian Access	08/26/04
	GW 6	Right Of Way Marker	04/29/04
	GW 7	Newspaper And Mailbox Stop Layout	03/15/04
	GW 8	Newspaper And Mailbox Support Hardware	03/15/04
	GW 9	Delineation Hardware	03/15/04
	GW 10	Delineation Application	03/15/04
	GW 11	Sidewalks And Shoulders On Urban Roadways	03/15/04

	NUMBER	TITLE	CURRENT DATE
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	PV 4	Concrete Pavement Details For Urban And Interstate	03/15/04
	PV 5	Urban Concrete Pavement Details	03/15/04
	PV 6	Rumble Strips	03/15/04
	PV 7	Rumble Strips - Typical Application	03/15/04
	PV 8	Note Used	
	PV 9	Dowel Bar Retrofit	08/26/04
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	SL 2	Traffic Signal Mast Arm Details 30'Thru 75'	03/15/04
	SL 3	Underground Service Pedestal Details	03/15/04
	SL 4	Traffic Signal Mast Arm Pole Foundation	03/15/04
	SL 5	Traffic Signal Pole	03/15/04
	SL 6	Pole Mounted Power Source Details	03/15/04
	SL 7	Span Wire Signal Pole Details	03/15/04
	SL 8	Signal Head Details	03/15/04
	SL 9	Pedestrian Signal Assembly	03/15/04
	SL 10	Traffic Signal Controller Base Details	03/15/04
	SL 11	Traffic Signal Loop Detector Details	03/15/04
	SL 12	Traffic Counting Loop Detector Details	03/15/04
	SL 13	Not Used	
	SL 14	Highway Luminaire Pole Ground Mount	03/15/04
	SL 15	Luminaire Slip Base Details	03/15/04
	SL 16	Highway Luminaire Pole Barrier Mount	03/15/04

	NUMBER	TITLE	CURRENT DATE
	SL 17	Highway Luminaire Pole Foundation Extension	03/15/04
	SL 18	Single Transformer Substation Details	03/15/04
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	SN 2	School Speed Limit Assembly	03/15/04
	SN 3	Overhead School Speed Limit Assembly	03/15/04
	SN 4	Flashing Stop Sign	03/15/04
	SN 5	Typical Installation For Milepost Signs	03/15/04
	SN 6	Speed Reduction Sign Sequence	03/15/04
	SN 7	Placement of Ground Mounted Signs	03/15/04
	SN 8	Ground Mounted Timber Sign Post (P1)	03/15/04
	SN 9	Ground Mounted Tubular Steel Sign Post (P2)	03/15/04
	SN 10	Ground Mounted Square Steel Sign Post (P3)	03/15/04
	SN 11	Slipbase Ground Mounted Tubular Steel Sign Post (P4)	03/15/04
	SN 12A	Ground Mounted Sign Installation Details	**10/21/04**
	SN 12B	Ground Mounted Sign Installation Details	03/15/04
	SN 12C	Ground Mounted Sign Installation Details	03/15/04
		Striping (ST)	
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	ST 2	Freeway Crossover Markings	03/15/04
	ST 3	Typical Pavement Markings	04/29/04
	ST 4	Crosswalks, Parking And Intersection Approaches	08/26/04
	ST 5	Painted Median And Auxiliary Lane Details	03/15/04
	ST 6	Passing/Climbing Lanes Traffic Control	04/29/04
	ST 7	Pavement Markings And Signs At Railroad Crossing	04/29/04
	ST 8	Plowable Pavement Markers	04/29/04
	ST 9	School Crossing And School Message	03/15/04
		Structures And Walls (SW)	
	SW 1A	Welded End Guard Unit	03/15/04

	NUMBER	TITLE	CURRENT DATE
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	SW 2	Noise Wall Placement Area	03/15/04
	SW 3A	Precast Concrete Noise Wall 1 Of 2	03/15/04
	SW 3B	Precast Concrete Noise Wall 2 Of 2	03/15/04
	SW 4A	Precast Concrete Retaining/Noise Wall 1 Of 2	03/15/04
	SW 4B	Precast Concrete Retaining/Noise Wall 2 Of 2	03/15/04
		Traffic Control (TC)	
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	TC 1B	Construction Zone Signing	03/15/04
	TC 2A	Traffic Control General	03/15/04
	TC 2B	Traffic Control General	03/15/04
	TC 3	Traffic Control Project Limit Signing	03/15/04
	TC 4	Traffic Control Urban Intersections With Roadways Under 50 MPH	03/15/04
	TC 5	Traffic Control Urban Intersections With Roadways Under 50 MPH	03/15/04
	TC 6	Traffic Control Pedestrian Routing	03/15/04
	TC 7	Traffic Control Road Closed, Detour	03/15/04
	TC 8	Traffic Control Lane Closure	03/15/04
	TC 9	Traffic Control Multilane Closure	03/15/04
	TC 10	Traffic Control Expressway And Freeway Crossover/Turn-Around	03/15/04
	TC 11	Traffic Control Exit Ramp Gore	03/15/04
	TC 12	Traffic Control Entrance Ramp Gore	03/15/04
	TC 13	Traffic Control Shoulder-Haul Road	03/15/04
	TC 14	Traffic Control Flagging Operation	03/15/04
	TC 15	Traffic Control 2 Lane/2 Way Seal Coat With Cover Material	03/15/04
	TC 16	Traffic Control Pavement Marking	03/15/04

Listing of Revised Standard Drawings

Change One

Revised April 29, 2004

AT 2	Ramp Meter Details	04/29/2004
AT 3	Ramp Meter Sign Panel	04/29/2004
AT 8	ATMS Cabinet W/120V Disconnect	04/29/2004
AT 9	ATMS Cab With Stepdown Transformer	04/29/2004
AT 10	Domed CCTV Details	04/29/2004
AT 13	120V VMS Cab Foundation Details	04/29/2004
AT 14	Weigh In Motion Piezo Details	04/29/2004
BA 4E	W-Beam Guardrail Installations	04/29/2004
CB 1	Standard Catch Basin	04/29/2004
DD 11	Rural Multi Lane Highways Other Than Freeways	04/29/2004
DD 12	Rural Two Lane Highways	04/29/2004
DD 13	Frontage and Access Roads (Under 50 ADT)	04/29/2004
FG 2A	Right of Way Fence and Gates (Metal Post)	04/29/2004
GF 5	Solid Cover and Frame	04/29/2004
GW 6	Right of Way Marker	04/29/2004
ST 3	Typical Pavement Markings	04/29/2004
ST 4	Crosswalks, Parking and Intersection Approaches	04/29/2004
ST 6	Passing/Climbing Lanes Traffic Control	04/29/2004
ST 7	Pavement Markings and Signs at Railroad Crossings	04/29/2004
ST 8	Plowable Pavement Markers	04/29/2004

Change Two

Revised August 26, 2004

BA 2	Precast Concrete Half Barrier Standard Section	08/26/2004
GW 5A	Pedestrian Access	08/26/2004
GW 5B	Pedestrian Access	08/26/2004
GW 5C	Pedestrian Access	08/26/2004
PV 9	Dowel Bar Retrofit	08/26/2004
ST 4	Crosswalks, Parking And Intersection Approaches	08/26/2004

Change Three

Revised October 21, 2004

CB 1	Curb and Gutter Inlet	10/21/2004
CB 2	Open Curb Inlet	10/21/2004
CB 3	Shallow Catch Basin	10/21/2004
CB 4	Open Curb Shallow Catch Basin	10/21/2004
CB 5	Deleted	
CB 5A	Standard Catch Basin and Cleanout Box	10/21/2004
CB 5B	Standard Catch Basin and Cleanout Box Section	10/21/2004
CB 6A	Drop Inlet Type “A”	10/21/2004
CB 6B	Berm Apron Detail With Drop Inlet Type “A”	10/21/2004
CB 6C	Deleted	
CB 6D	Deleted	
CB 6E	Deleted	
CB 6F	Deleted	
CB 6G	Deleted	
CB 6H	Deleted	
CB 7	Deleted	
CB 7A	Drop Inlet Type “B”	10/21/2004
CB 7B	Normal Apron With Drop Inlet Type “B”	10/21/2004
CB 11	Standard Manhole	10/21/2004
DB 4	Standard Transition Concrete Lined Ditch To Pipe Or Diversion Box	10/21/2004
DG 3	Maximum Fill Height For HDPE And PVC Pipes	10/21/2004
DG 4	Pipe Minimum Cover	10/21/2004
GF 13	Open Curb Inlet Grate and Frame	10/21/2004
GF 14	Solid Cover For Std Dwg DB 1 MS-18 Loading	10/21/2004
GF 15	Standard Screw Gate And Frame	10/21/2004
SN 12A	Ground Mounted Sign Installation Details	10/21/2004

UTAH DEPARTMENT OF TRANSPORTATION

STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION

	DWG. NO.	DESCRIPTION	DATE
		Advanced Traffic Management System (AT)	
	AT 1	LEGEND SHEET	03-15-04
	AT 2	RAMP METER DETAILS	04-29-04
	AT 3	RAMP METER SIGN PANEL	04-29-04
	AT 4	TYPICAL RAMP METER SIGNAL HEAD MOUNTING	03-15-04
	AT 5	LOOP INSTALLATION	03-15-04
	AT 6	CONDUIT DETAILS	03-15-04
	AT 7	POLYMER-CONCRETE JUNCTION BOX DETAILS	03-15-04
	AT 8	ATMS CABINET W/120V DISCONNECT	04-29-04
	AT 9	ATMS CAB WITH STEPDOWN TRANSFORMER	04-29-04
	AT 10	DOMED CCTV DETAILS	04-29-04
	AT 11	CCTV POLE DETAILS	03-15-04
	AT 12	CCTV POLE FOUNDATION FOR DEDICATED CCTV POLE	03-15-04
	AT 13	120V VMS CAB FOUNDATION DETAILS	04-29-04
	AT 14	WEIGHT IN MOTION PIEZO DETAILS	04-29-04
	AT 15	RWIS SITE AND FOUNDATION DETAILS	03-15-04
	AT 16	RPU TOWER BASE AND SERVICE PAD LAYOUT	03-15-04
	AT 17	GROUND ROD INSTALLATION AND TOWER GROUNDING	03-15-04
		Barriers (BA)	
	BA 1A	PRECAST CONCRETE FULL BARRIER STANDARD SECTION	03-15-04
	BA 1B	PRECAST CONCRETE FULL BARRIER STANDARD SECTION	03-15-04
	BA 2	PRECAST CONCRETE HALF BARRIER STANDARD SECTION	08-26-04
	BA 3	CAST IN PLACE CONSTANT SLOPE BARRIER	03-15-04
	BA 4A	W-BEAM GUARDRAIL HARDWARE	03-15-04
	BA 4B	W-BEAM GUARDRAIL TRANSITION WITH NEW JERSEY BARRIER SHAPE	03-15-04
	BA 4C	NOT USED	
	BA 4D	W-BEAM GUARDRAIL ANCHOR TYPE 1	03-15-04
	BA 4E	W-BEAM GUARDRAIL INSTALLATIONS	04-29-04
	BA 4F	W-BEAM GUARDRAIL TYPICALS DIVIDED ROADWAYS	03-15-04
	BA 4G	W-BEAM GUARDRAIL TYPICAL MULTILANE ARTERIAL	03-15-04
	BA 4H	W-BEAM GUARDRAIL TYPICAL 2 LANE 2 WAY	03-15-04
	BA 4I	W-BEAM GUARDRAIL BURIED IN BACKSLOPE TERMINAL	03-15-04
	BA 4J	W-BEAM GUARDRAIL BURIED IN BACKSLOPE TERMINAL WITH RUB RAIL	03-15-04
	BA 4K	W-BEAM GUARDRAIL BURIED IN BACKSLOPE TERMINAL ANCHOR	03-15-04
	BA 4L	W-BEAM GUARDRAIL CURVE DETAILS	03-15-04
	BA 4M	W-BEAM GUARDRAIL NESTED GUARDRAIL 12' 6" SPAN	03-15-04
	BA 4N	W-BEAM GUARDRAIL NESTED GUARDRAIL 18' 9" SPAN	03-15-04
	BA 4O	W-BEAM GUARDRAIL NESTED GUARDRAIL 25' SPAN	03-15-04
	BA 4P	W-BEAM GUARDRAIL WITH PRECAST BARRIER FOR SPAN > 25'	03-15-04
		Catch Basins and Cleanouts (CB)	
	CB 1	CURB AND GUTTER INLET	10-21-04
	CB 2	OPEN CURB INLET	10-21-04
	CB 3	SHALLOW CATCH BASIN	10-21-04
	CB 4	OPEN CURB SHALLOW CATCH BASIN	10-21-04
	CB 5A	STANDARD CATCH BASIN AND CLEANOUT BOX	10-21-04
	CB 5B	STANDARD CATCH BASIN AND CLEANOUT BOX SECTION	10-21-04
	CB 6A	DROP INLET TYPE "A"	10-21-04
	CB 6B	BERM APRON WITH DROP INLET TYPE "A"	10-21-04
	CB 7A	DROP INLET TYPE "B"	10-21-04
	CB 7B	NORMAL APRON WITH DROP INLET TYPE "B"	10-21-04
	CB 8A	DOUBLE CATCH BASIN	03-15-04
	CB 8B	DOUBLE CATCH BASIN	03-15-04
	CB 9A	STANDARD CATCH BASIN AND CLEANOUT BOX SITUATION AND LAYOUT	03-15-04
	CB 9B	STANDARD CATCH BASIN AND CLEANOUT BOX SECTION DETAILS	03-15-04
	CB 9C	STANDARD CATCH BASIN AND CLEANOUT BOX SCHEDULE OF INSTALLATION 18" TO 42" RCP 12" TO 48" CMP	03-15-04
	CB 9D	STANDARD CATCH BASIN AND CLEANOUT BOX SCHEDULE OF INSTALLATION 48" TO 66" RCP 60" TO 78" CMP	03-15-04
	CB 10A	STANDARD CATCH BASIN AND CLEANOUT BOX SITUATION AND LAYOUT	03-15-04
	CB 10B	STANDARD CATCH BASIN AND CLEANOUT BOX SECTION DETAILS	03-15-04
	CB 10C	STANDARD CATCH BASIN AND CLEANOUT BOX SCHEDULE OF INSTALLATION 42" TO 60" RCP 48" TO 72" CMP	03-15-04
	CB 11	STANDARD MANHOLE	10-21-04
		Crash Cushions (CC)	
	CC 1	CRASH CUSHION MARKINGS	03-15-04
	CC 2	CRASH CUSHION DRAINAGE DETAILS GUIDELINE A	03-15-04
	CC 3	CRASH CUSHION DRAINAGE DETAILS GUIDELINE B	03-15-04
	CC 4	DETAIL FOR PLACEMENT CRASH CUSHIONS TYPE A, B AND D	03-15-04
	CC 5	GRADING AND PLACEMENT DETAILS CRASH CUSHION TYPE C	03-15-04
	CC 6	CRASH CUSHION TYPE E SAND BARREL DETAILS	03-15-04
	CC 7	GRADING AND INSTALLATION DETAILS CRASH CUSHION TYPE F	03-15-04
	CC 8	GRADING AND INSTALLATION DETAILS CRASH CUSHION TYPE G	03-15-04
	CC 9A	GRADING AND INSTALLATION DETAILS CRASH CUSHION TYPE H	03-15-04
	CC 9B	GRADING AND INSTALLATION DETAILS CRASH CUSHION TYPE H	03-15-04
		Diversion Boxes (DB)	
	DB 1A	STANDARD DIVERSION BOX/COVER PLATE/GRATING FOR 18" DIA. OR 24" DIA. PIPE	03-15-04
	DB 1B	STANDARD DIVERSION BOX HINGED LID DETAILS FOR 18" DIA. OR 24" DIA. PIPE	03-15-04
	DB 1C	STANDARD DIVERSION BOX BICYCLE-SAFE GRATING DETAILS FOR 18" DIA. OR 24" DIA. PIPE	03-15-04
	DB 1D	STANDARD DIVERSION BOX THREE GATE BOX SECTIONS FOR 18" DIA. OR 24" DIA. PIPE	03-15-04
	DB 1E	STANDARD DIVERSION BOX THREE GATE BOX SECTIONS FOR 18" DIA. OR 24" DIA. PIPE	03-15-04
	DB 1F	STANDARD DIVERSION BOX THREE GATE BOX SECTIONS FOR 18" DIA. OR 24" DIA. PIPE	03-15-04
	DB 2A	STANDARD DIVERSION BOX W/INTERCHANGEABLE WALLS, BOTTOM SLAB, WALLS AND APRON DETAILS	03-15-04
	DB 2B	STANDARD DIVERSION BOX W/INTERCHANGEABLE WALLS, QUANTITIES SCHEDULE	03-15-04
	DB 2C	STANDARD DIVERSION BOX W/INTERCHANGEABLE WALLS, HAND SLIDE GATE DETAILS	03-15-04
	DB 2D	STANDARD DIVERSION BOX TYPE "G" HAND SLIDE GATE DETAILS	03-15-04
	DB 2E	STANDARD DIVERSION BOX HINGED LID (SOLID COVER PLATE) TYPE "A" DETAILS TYPE I PLAN	03-15-04
	DB 2F	STANDARD DIVERSION BOX HINGED LID (SOLID COVER PLATE) TYPE "A" DETAILS TYPE II PLAN	03-15-04
	DB 2G	STANDARD DIVERSION BOX HINGED LID SOLID COVER TYPE "B" DETAILS	03-15-04
	DB 2H	STANDARD DIVERSION BOX HINGED LID SOLID COVER TYPE "B" AND "C" DETAILS	03-15-04
	DB 3A	STANDARD DIVERSION BOX WITH MANHOLE COVER SITUATION AND LAYOUT	03-15-04
	DB 3B	STANDARD DIVERSION BOX WITH MANHOLE COVER UP TO 42" RCP AND UP TO 54" CMP	03-15-04
	DB 3C	STANDARD DIVERSION BOX WITH MANHOLE COVER 48" TO 72" RCP AND 60" TO 84" CMP	03-15-04
	DB 4	STANDARD TRANSITION CONCRETE LINED DITCH TO PIPE OR DIVERSION BOX	10-21-04
		Design (DD)	
	DD 1	SUPERELEVATION AND WIDENING	03-15-04
	DD 2	SURFACE DITCH, BENCHED SLOPE, AND CUT DITCH DETAILS	03-15-04
	DD 3	CLIMBING LANES	03-15-04
	DD 4	GEOMETRIC DESIGN FOR FREEWAYS (ROADWAY)	03-15-04
	DD 5	ENTRANCE AND EXIT RAMPS AT CROSSROADS	03-15-04
	DD 6	ENTRANCE AND EXIT RAMP GEOMETRICS	03-15-04
	DD 7	FREEWAY CROSSOVER	03-15-04
	DD 8	STRUCTURAL GEOMETRIC DESIGN STANDARDS FOR CLEARANCES	03-15-04
	DD 9	STRUCTURAL GEOMETRIC DESIGN STANDARDS	03-15-04
	DD 10	RAILROAD CLEARANCES AT HIGHWAY OVERPASS STRUCTURES	03-15-04
	DD 11	RURAL MULTI LANE HIGHWAYS OTHER THAN FREEWAYS	04-29-04
	DD 12	RURAL TWO LANE HIGHWAYS	04-29-04
	DD 13	FRONTAGE AND ACCESS ROADS (UNDER 50 ADT)	04-29-04
	DD 14	TYPICAL RURAL 2 LANE ROAD WITH MEDIAN LANE AND DECELERATION LANE FOR INTERSECTING CROSSROADS	03-15-04
		Drainage (DG)	
	DG 1	FILL HEIGHT FOR METAL PIPE (STEEL)	03-15-04
	DG 2	FILL HEIGHT FOR METAL PIPE (ALUMINUM)	03-15-04
	DG 3	MAXIMUM FILL HEIGHT FOR HDPE AND PVC PIPES	10-21-04
	DG 4	PIPE MINIMUM COVER	10-21-04
	DG 5	PLASTIC PIPE, METAL PIPE OR PIPE ARCH CULVERT BEDDING	03-15-04
	DG 6	PRECAST CONCRETE PIPE CULVERT	03-15-04
	DG 7	GASKETTED JOINTS OR COUPLING BANDS FOR CMP	03-15-04
	DG 8	METAL CULVERT END SECTION	03-15-04
	DG 9	MISCELLANEOUS PIPE DETAILS	03-15-04
		Environmental Controls (EN)	
	EN 1	TEMPORARY EROSION CONTROL (CHECK DAMS)	03-15-04
	EN 2	TEMPORARY EROSION CONTROL (SILT FENCE)	03-15-04
	EN 3	TEMPORARY EROSION CONTROL (SLOPE DRAIN AND TEMPORARY BERM)	03-15-04
	EN 4	TEMPORARY EROSION CONTROL (DROP INLET BARRIERS)	03-15-04
	EN 5	TEMPORARY EROSION CONTROL (SEDIMENT TRAP AND CURB INLET BARRIER)	03-15-04

☒ MARKED BOXES INDICATE DRAWINGS APPLICABLE TO THIS PROJECT

NO.	DATE	APPR.	REMARKS
1	04/29/04	BA	CHANGE 1
2	08/26/04	BA	CHANGE 2
3	10/21/04	BA	CHANGE 3

REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

REVIEWED AND CHECKED — OCT.21.2004 DATE

CHECKED AND APPROVAL — OCT.21.2004 DATE

STANDARD ENGINEER

STANDARD DRAWING INDEX SHEET

STANDARD DRAWING TITLE

STD DWG
1-B

DGN File: N:\Esd\Standard_Drawings\Imperial\2004Working\StandardsCommitteeFiles\October2004\sheet1b.dgn
23-NOV-2004

UTAH DEPARTMENT OF TRANSPORTATION

STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION

	DWG. NO.	DESCRIPTION	DATE
		Fence and Gates (FG)	
	FG 1A	RIGHT OF WAY FENCE AND GATES (WOOD POST)	03-15-04
	FG 1B	RIGHT OF WAY FENCE AND GATES (WOOD POST)	03-15-04
	FG 2A	RIGHT OF WAY FENCE AND GATES (METAL POST)	04-29-04
	FG 2B	RIGHT OF WAY FENCE AND GATES (METAL POST)	03-15-04
	FG 3	SWING GATES TYPE 1 FOR GATES LESS THAN 17'	03-15-04
	FG 4	DEER GATES	03-15-04
	FG 5	SWING GATES TYPE II FOR GATES WIDER THAN 17'	03-15-04
	FG 6	CHAIN LINK FENCE	03-15-04
		Grates, Frames and Trash Racks (GF)	
	GF 1	MANHOLE FRAME AND GRATED COVER	03-15-04
	GF 2	MANHOLE FRAME AND SOLID COVER	03-15-04
	GF 3	RECTANGULAR GRATE AND FRAME	03-15-04
	GF 4	DIRECTIONAL FLOW GRATE AND FRAME	03-15-04
	GF 5	SOLID COVER AND FRAME	04-29-04
	GF 6	MANHOLE STEPS	03-15-04
	GF 7	STANDARD SCREW GATE AND FRAME	03-15-04
	GF 8	2' x 2' GRATE AND FRAME	03-15-04
	GF 9	28" x 24" DIRECTIONAL FLOW GRATE AND FRAME	03-15-04
	GF 10	STANDARD TRASH RACKS 90° X-ING ANGLE	03-15-04
	GF 11	STANDARD TRASH RACKS	03-15-04
	GF 12	STANDARD TRASH RACKS	03-15-04
	GF 13	OPEN CURB INLET GRATE AND FRAME	10-21-04
	GF 14	SOLID COVER FOR STD DWG DB 1 MS-18 LOADING	10-21-04
	GF 15	STANDARD SCREW GATE AND FRAME	10-21-04
		General Road Work (GW)	
	GW 1	RAISED MEDIAN AND PLOWABLE END SECTION	03-15-04
	GW 2	CONCRETE CURB AND GUTTER	03-15-04
	GW 3	CONCRETE CURB AND GUTTER DETAILS	03-15-04
	GW 4	CONCRETE DRIVEWAYS AND SIDEWALKS	03-15-04
	GW 5A	PEDESTRIAN ACCESS	08-26-04
	GW 5B	PEDESTRIAN ACCESS	08-26-04
	GW 5C	PEDESTRIAN ACCESS	08-26-04
	GW 6	RIGHT OF WAY MARKER	04-29-04
	GW 7	NEWSPAPER AND MAILBOX STOP LAYOUT	03-15-04
	GW 8	NEWSPAPER AND MAILBOX SUPPORT HARDWARE	03-15-04
	GW 9	DELINEATION HARDWARE	03-15-04
	GW 10	DELINEATION APPLICATION	03-15-04
	GW 11	SIDEWALKS AND SHOULDERS ON URBAN ROADWAYS	03-15-04

	DWG. NO.	DESCRIPTION	DATE
		Paving (PV)	
	PV 1	JOINTS FOR HIGHWAYS WITH CONCRETE TRAFFIC LANES AND SHOULDERS	03-15-04
	PV 2	PAVEMENT/APPROACH SLAB DETAILS	03-15-04
	PV 3	CONCRETE PAVEMENT DETAILS FOR URBAN AND INTERSTATE	03-15-04
	PV 4	CONCRETE PAVEMENT DETAILS FOR URBAN AND INTERSTATE	03-15-04
	PV 5	URBAN CONCRETE PAVEMENT DETAILS	03-15-04
	PV 6	RUMBLE STRIPS	03-15-04
	PV 7	RUMBLE STRIPS-TYPICAL APPLICATION	03-15-04
	PV 8	NOT USED	
	PV 9	DOWEL BAR RETROFIT	08-26-04
		Signals (SL)	
	SL 1A	TRAFFIC SIGNAL MAST ARM POLE AND LUMINAIRE EXTENSION	03-15-04
	SL 1B	TRAFFIC SIGNAL MAST ARM POLE AND LUMINAIRE EXTENSION	03-15-04
	SL 2	TRAFFIC SIGNAL MAST ARM DETAILS 30' THRU 75'	03-15-04
	SL 3	UNDERGROUND SERVICE PEDESTAL DETAILS	03-15-04
	SL 4	TRAFFIC SIGNAL MAST ARM POLE FOUNDATION	03-15-04
	SL 5	TRAFFIC SIGNAL POLE	03-15-04
	SL 6	POLE MOUNTED POWER SOURCE DETAILS	03-15-04
	SL 7	SPAN WIRE SIGNAL POLE DETAILS	03-15-04
	SL 8	SIGNAL HEAD DETAILS	03-15-04
	SL 9	PEDESTRIAN SIGNAL ASSEMBLY	03-15-04
	SL 10	TRAFFIC SIGNAL CONTROLLER BASE DETAILS	03-15-04
	SL 11	TRAFFIC SIGNAL LOOP DETECTOR DETAILS	03-15-04
	SL 12	TRAFFIC COUNTING LOOP DETECTOR DETAILS	03-15-04
	SL 13	NOT USED	
	SL 14	HIGHWAY LUMINAIRE POLE GROUND MOUNT	03-15-04
	SL 15	LUMINAIRE SLIP BASE DETAILS	03-15-04
	SL 16	HIGHWAY LUMINAIRE POLE BARRIER MOUNT	03-15-04
	SL 17	HIGHWAY LUMINAIRE POLE FOUNDATION EXTENSION	03-15-04
	SL 18	SINGLE TRANSFORMER SUBSTATION DETAILS	03-15-04
		Signs (SN)	
	SN 1	BRIDGE LOAD LIMITS SIGNS	03-15-04
	SN 2	SCHOOL SPEED LIMIT ASSEMBLY	03-15-04
	SN 3	OVERHEAD SCHOOL SPEED LIMIT ASSEMBLY	03-15-04
	SN 4	FLASHING STOP SIGN	03-15-04
	SN 5	TYPICAL INSTALLATION FOR MILEPOST SIGNS	03-15-04
	SN 6	SPEED REDUCTION SIGN SEQUENCE	03-15-04
	SN 7	PLACEMENT OF GROUND MOUNTED SIGNS	03-15-04
	SN 8	GROUND MOUNTED TIMBER SIGN POST (P1)	03-15-04
	SN 9	GROUND MOUNTED TUBULAR STEEL SIGN POST (P2)	03-15-04
	SN 10	GROUND MOUNTED SQUARE STEEL SIGN POST (P3)	03-15-04
	SN 11	SLIPBASE GROUND MOUNTED TUBULAR STEEL SIGN POST (P4)	03-15-04
	SN 12A	GROUND MOUNTED SIGN INSTALLATION DETAILS	10-21-04
	SN 12B	GROUND MOUNTED SIGN INSTALLATION DETAILS	03-15-04
	SN 12C	GROUND MOUNTED SIGN INSTALLATION DETAILS	03-15-04

	DWG. NO.	DESCRIPTION	DATE
		Striping (ST)	
	ST 1	OBJECT MARKERS "T" INTERSECTION AND PAVEMENT TRANSITION GUIDANCE	03-15-04
	ST 2	FREEWAY CROSSOVER MARKINGS	03-15-04
	ST 3	TYPICAL PAVEMENT MARKINGS	04-29-04
	ST 4	CROSSWALKS, PARKING AND INTERSECTION APPROACHES	08-26-04
	ST 5	PAINTED MEDIAN AND AUXILIARY LANE DETAILS	03-15-04
	ST 6	PASSING/CLIMBING LANES TRAFFIC CONTROL	04-29-04
	ST 7	PAVEMENT MARKINGS AND SIGNS AT RAILROAD CROSSING	04-29-04
	ST 8	PLOWABLE PAVEMENT MARKERS	04-29-04
	ST 9	SCHOOL CROSSING AND SCHOOL MESSAGE	03-15-04
		Structures and Walls (SW)	
	SW 1A	WELDED END GUARD UNIT	03-15-04
	SW 1B	PRECAST CONCRETE CATTLE GUARD	03-15-04
	SW 2	NOISE WALL PLACEMENT AREA	03-15-04
	SW 3A	PRECAST CONCRETE NOISE WALL 1 OF 2	03-15-04
	SW 3B	PRECAST CONCRETE NOISE WALL 2 OF 2	03-15-04
	SW 4A	PRECAST CONCRETE RETAINING/NOISE WALL 1 OF 2	03-15-04
	SW 4B	PRECAST CONCRETE RETAINING/NOISE WALL 2 OF 2	03-15-04
		Traffic Control (TC)	
	TC 1A	CONSTRUCTION ZONE CHANNELIZATION DEVICES	03-15-04
	TC 1B	CONSTRUCTION ZONE SIGNING	03-15-04
	TC 2A	TRAFFIC CONTROL GENERAL	03-15-04
	TC 2B	TRAFFIC CONTROL GENERAL	03-15-04
	TC 3	TRAFFIC CONTROL PROJECT LIMIT SIGNING	03-15-04
	TC 4	TRAFFIC CONTROL URBAN INTERSECTION WITH ROADWAYS UNDER 50 MPH	03-15-04
	TC 5	TRAFFIC CONTROL URBAN INTERSECTION WITH ROADWAYS UNDER 50 MPH	03-15-04
	TC 6	TRAFFIC CONTROL PEDESTRIAN ROUTING	03-15-04
	TC 7	TRAFFIC CONTROL ROAD CLOSED, DETOUR	03-15-04
	TC 8	TRAFFIC CONTROL LANE CLOSURE	03-15-04
	TC 9	TRAFFIC CONTROL MULTILANE CLOSURE	03-15-04
	TC 10	TRAFFIC CONTROL EXPRESSWAY AND FREEWAY CROSSOVER/ TURN AROUND	03-15-04
	TC 11	TRAFFIC CONTROL EXIT RAMP GORE	03-15-04
	TC 12	TRAFFIC CONTROL ENTRANCE RAMP GORE	03-15-04
	TC 13	TRAFFIC CONTROL SHOULDER-HAUL ROAD	03-15-04
	TC 14	TRAFFIC CONTROL FLAGGING OPERATION	03-15-04
	TC 15	TRAFFIC CONTROL 2 LANE / 2 WAY SEAL COAT WITH COVER MATERIAL	03-15-04
	TC 16	TRAFFIC CONTROL PAVEMENT MARKING	03-15-04

☒ MARKED BOXES INDICATE DRAWINGS APPLICABLE TO THIS PROJECT

REVISIONS

NO.	DATE	APPR.	REMARKS
1	04/29/04	B.A.	CHANGE 1
2	08/26/04	B.A.	CHANGE 2
3	10/21/04	B.A.	CHANGE 3

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

REVIEWED AND CHECKED — OCT.21.2004 DATE

CHECKED AND APPROVAL — OCT.21.2004 DATE

STANDARD ENGINEER

STANDARD DRAWING INDEX SHEET

STANDARD DRAWING TITLE

STD DWG
1-C

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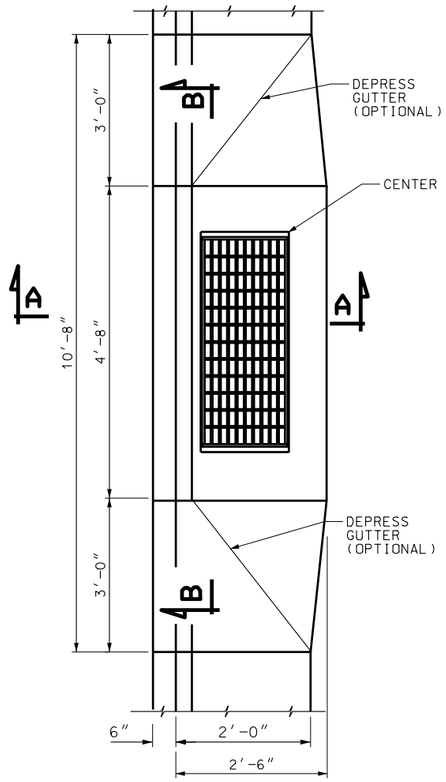
23-NOV-2004



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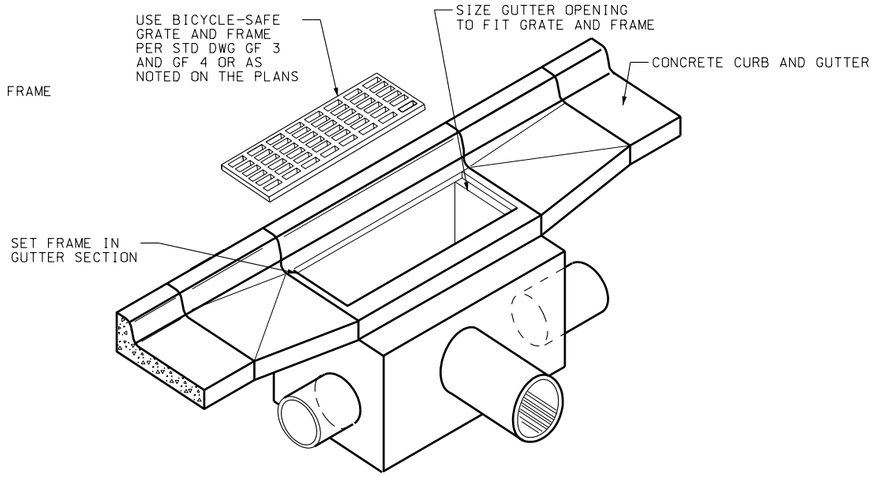


ISOMETRIC VIEW

NOTES:

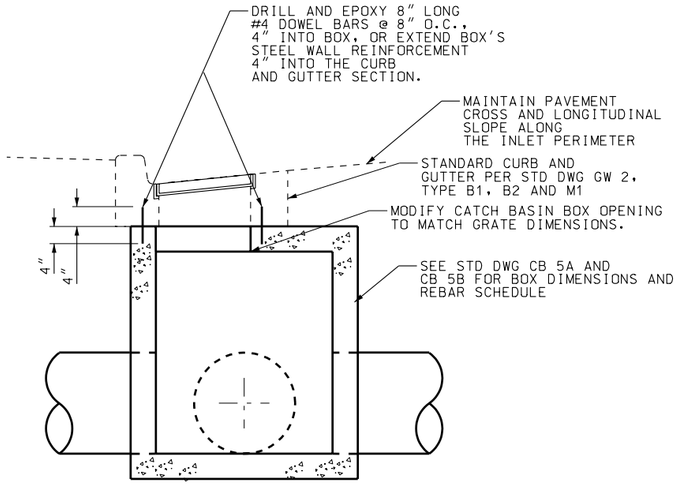
1. USE CLASS AA(AE) CONCRETE.
2. TYPE II CEMENT (LOW ALKALI) REQUIRED.
3. FOR NUMBER, LOCATION AND SIZE OF PIPE(S) SEE ROADWAY PLANS.
4. PROVIDE $^{3}/_{4}$" CHAMFER ON ALL EXPOSED CONCRETE CORNERS.
5. FOR GRATE AND FRAME SEE STD DWG GF 3 OR GF 4.

DESIGN DATA

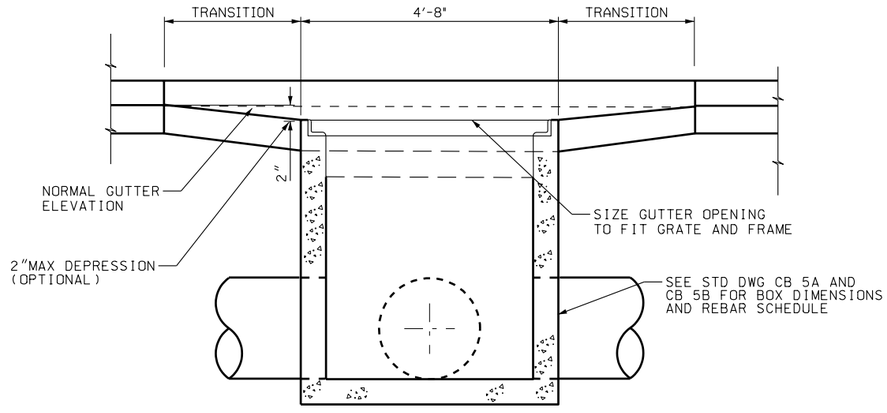
HS 20 OR INTERSTATE ALTERNATE LOADING IN ACCORDANCE WITH AASHTO 17th EDITION SPECIFICATIONS.

STRUCTURAL STEEL: Fy = 36,000 psi

STRUCTURAL CONCRETE: f'c = 4,000 psi
fy = 60,000 psi
n = 8



SECTION A–A



SECTION B–B

REVISIONS

NO.	DATE	APPR.	REMARKS
1	10/21/04	B.A.	TITLE CHANGED. ENTIRE DRAWING REVISED.

UTAH DEPARTMENT OF TRANSPORTATION

STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — OCT.21.2004 DATE

CHAIRMAN STANDARDS COMMITTEE APPROVED — OCT.21.2004 DATE

DEPUTY DIRECTOR

CURB AND GUTTER INLET

STD DWG
CB 1

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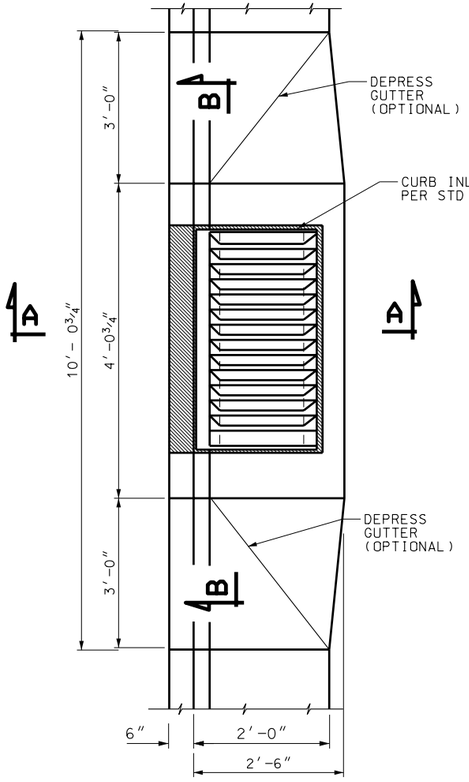
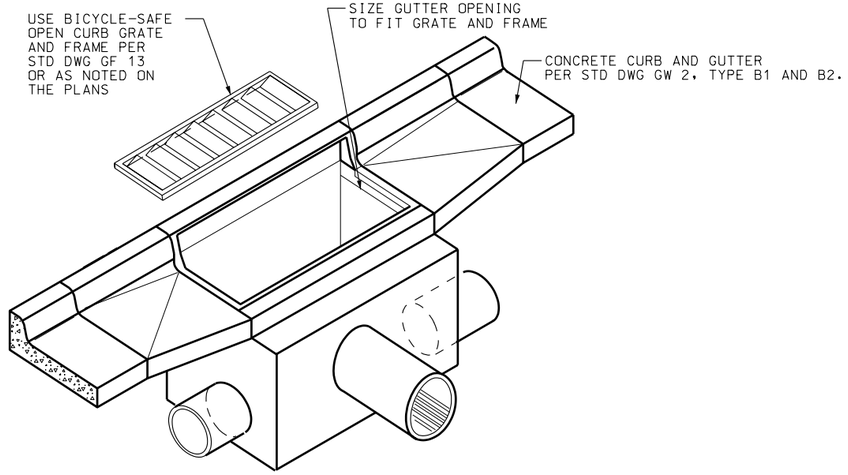
23-NOV-2004



PLAN



ISOMETRIC VIEW

NOTES:

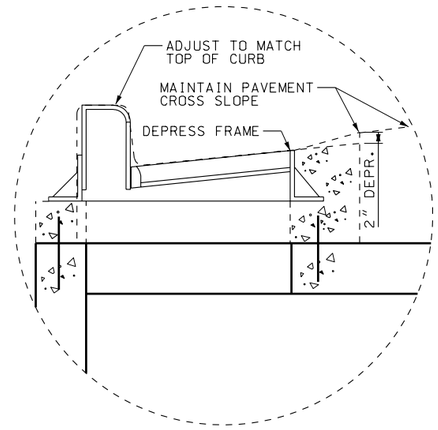
1. USE CLASS AA(AE) CONCRETE.
2. TYPE II CEMENT (LOW ALKALI) REQUIRED.
3. FOR NUMBER, LOCATION, AND SIZE OF PIPE(S) SEE ROADWAY PLANS.
4. SEE PLANS FOR DEPRESSION DIMENSION.
5. PROVIDE ¾" CHAMFER ON ALL EXPOSED CONCRETE CORNERS.
6. FOR GRATE AND FRAME SEE STD DWG GF 13.

DESIGN DATA

HS 20 OR INTERSTATE ALTERNATE LOADING IN ACCORDANCE WITH AASHTO 17th EDITION SPECIFICATIONS.

STRUCTURAL STEEL: Fy = 36,000 psi

STRUCTURAL CONCRETE: f'c = 4,000 psi
fy = 60,000 psi
n = 8



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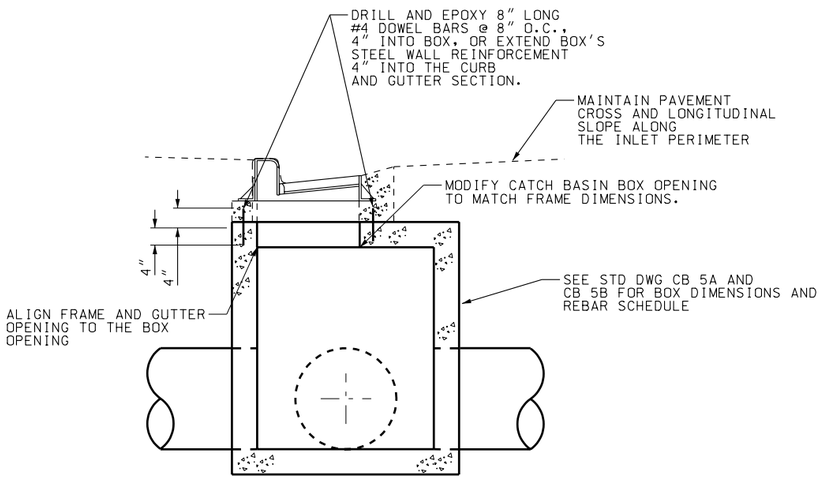
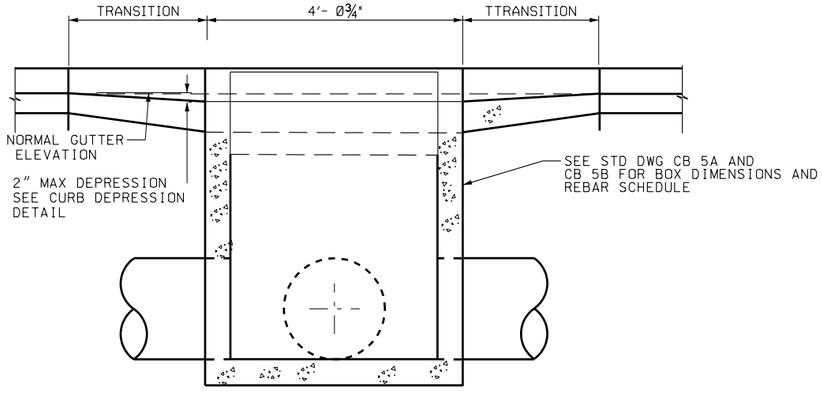


SECTION A-A



SECTION B-B

NO.	DATE	APPR.	REMARKS
1	10/21/04	B.A.	TITLE CHANGED. ENTIRE DRAWING REVISED.

REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — OCT.21,2004 DATE

CHAIRMAN STANDARDS COMMITTEE APPROVED — OCT.21,2004 DATE

DEPUTY DIRECTOR

OPEN CURB INLET

STD DWG
CB 2

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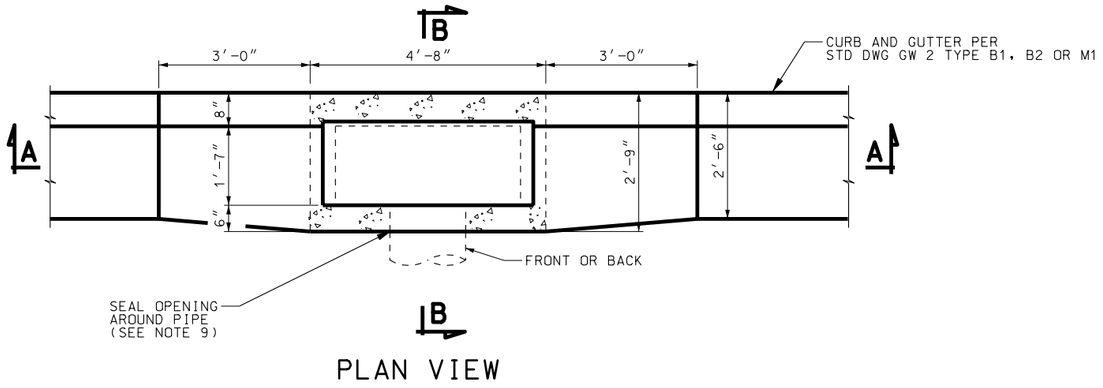
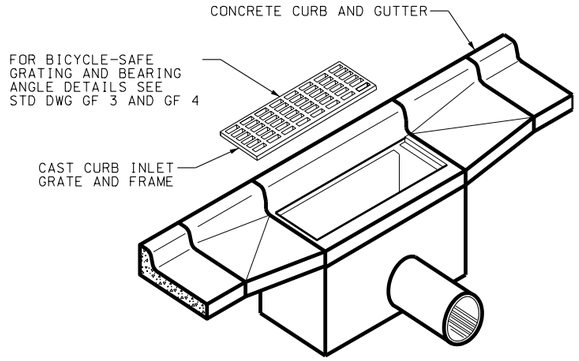
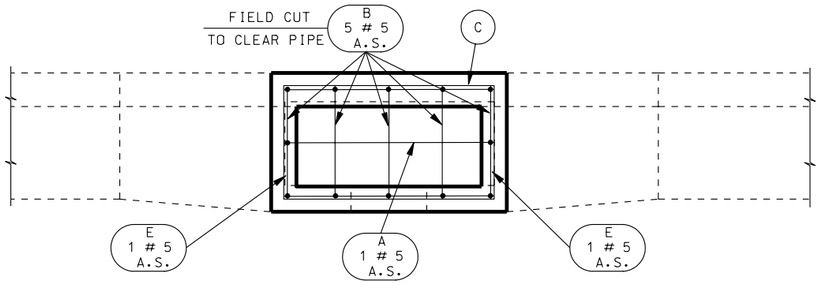
23-NOV-2004



PLAN VIEW



ISOMETRIC VIEW



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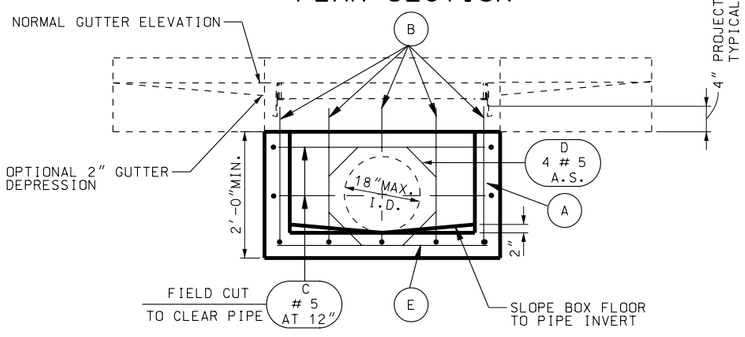
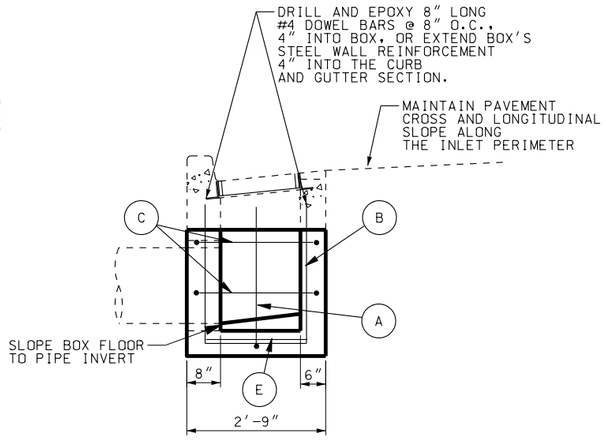


SECTION A–A



SECTION B–B

NOTES:

1. USE COATED DEFORMED BILLET REINFORCING STEEL BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
2. USE CLASS AA(AE) CONCRETE.
3. USE TYPE II CEMENT (LOW ALKALI).
4. PROVIDE 3/4″ CHAMFER ON ALL EXPOSED CONCRETE CORNERS.
5. PROVIDE 2″ CONCRETE COVER TO REINFORCING STEEL.
6. FOR GRATE AND FRAME SEE STD DWG GF 3 AND GF 4.
7. FIELD CUT AND BEND REINFORCING STEEL AS NECESSARY TO CLEAR PIPE(S) AND MAINTAIN 2″ COVER.
8. FOR LOCATION AND SIZE OF PIPE(S) SEE ROADWAY PLANS.
9. CENTER PIPE IN BOX OPENING. USE NON-SHRINK GROUT TO SEAL OPENING AROUND THE PIPE, OR USE PIPE MANUFACTURER PIPE-BOOT INSTEAD.
10. SIZE BOX HEIGHT TO MEET MINIMUM COVER FOR PIPE USED. (SEE STD DWG DG 4)
11. REPAIR ANY DAMAGE OR CUTS TO EPOXY COATING.

DESIGN DATA

HS 20 OR INTERSTATE ALTERNATE LOADING IN ACCORDANCE WITH AASHTO 17th EDITION SPECIFICATIONS.

STRUCTURAL STEEL: Fy = 36,000 psi

STRUCTURAL CONCRETE: f′c = 4,000 psi
fy = 60,000 psi
n = 8

REINFORCING STEEL LAYOUT

PROVIDE 2″MIN. COVER TO ALL BARS

BAR A	BAR B	BAR C	BAR D	BAR E
		8″		

REVISIONS

NO.	DATE	APPR.	REMARKS
1	10/21/04	B.A.	NEW DRAWING. ORIGINAL CB 3 NOW DB 4.

UTAH DEPARTMENT OF TRANSPORTATION

STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — OCT.21,2004 DATE

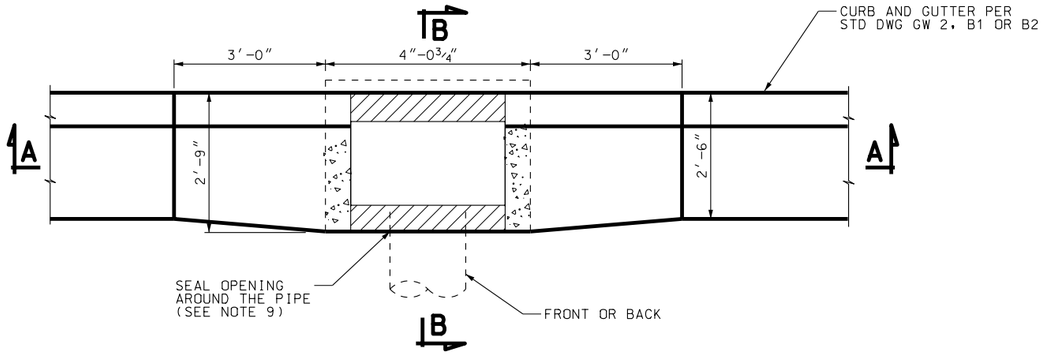
CHAIRMAN STANDARDS COMMITTEE
APPROVED — OCT.21,2004 DATE

DEPUTY DIRECTOR

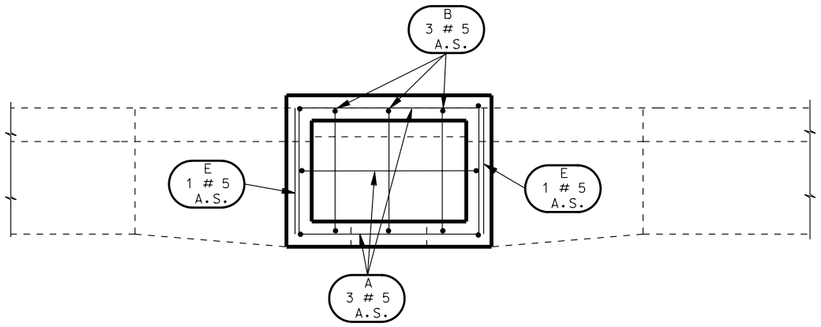
SHALLOW
CATCH BASIN

STD DWG
CB 3

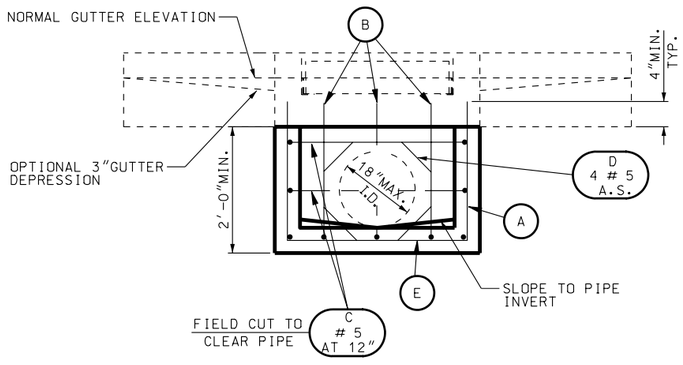
DGN File: N:\Esd\Standard Drawings\Imperial\2004Working\StandardsCommittee Files\October 2004\CB03.dgn
23-NOV-2004



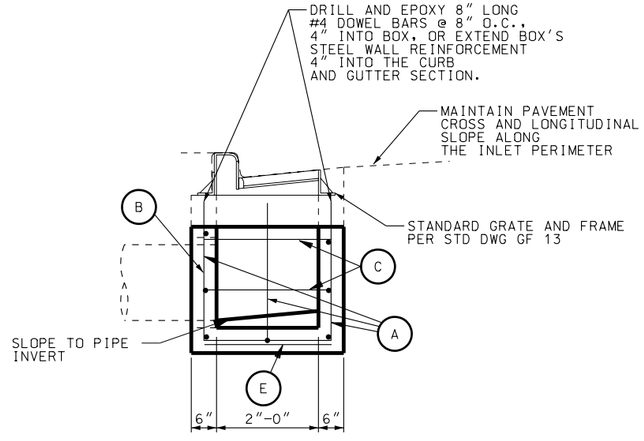
PLAN VIEW



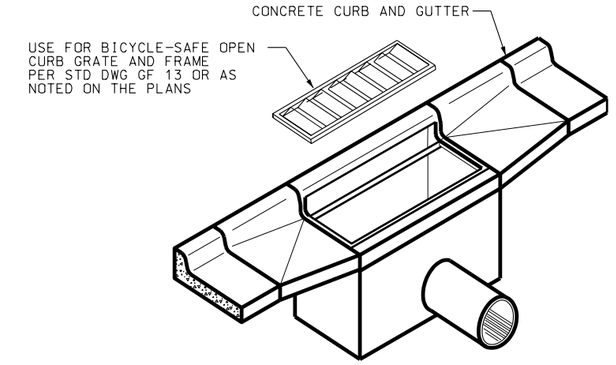
PLAN SECTION



SECTION A–A



SECTION B–B



ISOMETRIC VIEW

NOTES:

1. USE COATED DEFORMED BILLET REINFORCING STEEL BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
2. USE CLASS AA(AE) CONCRETE.
3. USE TYPE II CEMENT (LOW ALKALI).
4. PROVIDE ¾″ CHAMFER ON ALL EXPOSED CONCRETE CORNERS.
5. PROVIDE 2″ CONCRETE COVER TO REINFORCING STEEL.
6. FOR GRATE AND FRAME SEE STD DWG GF 13.
7. FIELD CUT AND BEND REINFORCING STEEL AS NECESSARY TO CLEAR PIPE(S) AND MAINTAIN 2″ COVER.
8. FOR LOCATION AND SIZE OF PIPE(S) SEE ROADWAY PLANS.
9. CENTER PIPE IN OPENING, USE APPROVED NON-SHRINK GROUT TO SEAL OPENING AROUND THE PIPE, OR USE APPROVED PIPE MANUFACTURER PIPE-BOOT INSTEAD.
10. SIZE BOX HEIGHT TO MEET MINIMUM COVER FOR PIPE USED. (SEE STD DWG 4)
11. REPAIR ANY DAMAGE OR CUTS TO EPOXY COATING.

DESIGN DATA

HS 20 OR INTERSTATE ALTERNATE LOADING IN ACCORDANCE WITH AASHTO 17 th EDITION SPECIFICATIONS.

STRUCTURAL STEEL: Fy = 36,000 psi

STRUCTURAL CONCRETE:
f′c = 4,000 psi
fy = 60,000 psi
n = 8

REINFORCING STEEL LAYOUT

PROVIDE 2″ MIN. COVER TO ALL BARS

BAR A	BAR B	BAR C	BAR D	BAR E
		8″		

REVISIONS

NO.	DATE	APPR.	REMARKS
1	10/21/04	B.A.	NEW DRAWING. ORIGINAL CB 4 NOW GF 14.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

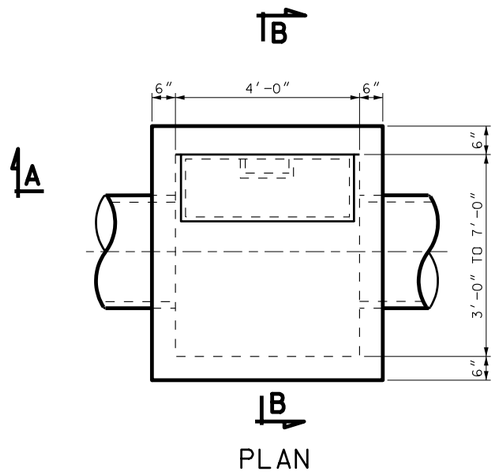
RECOMMENDED FOR APPROVAL — OCT.21.2004 DATE

CHAIRMAN STANDARDS COMMITTEE
APPROVED — OCT.21.2004 DATE

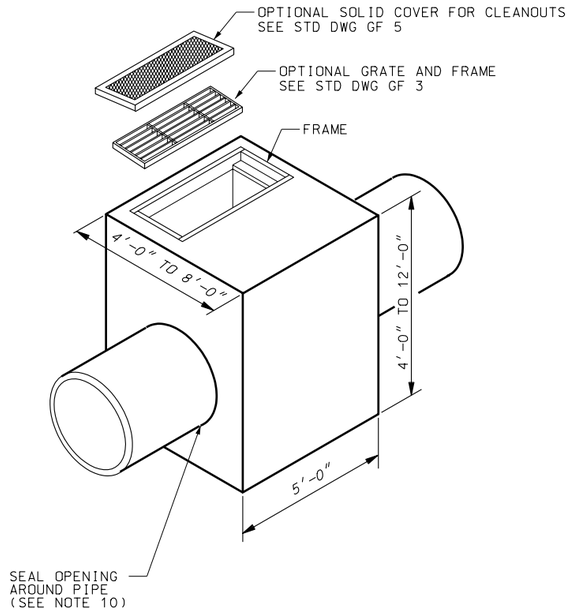
DEPUTY DIRECTOR

OPEN CURB SHALLOW CATCH BASIN

STD DWG
CB 4



PLAN



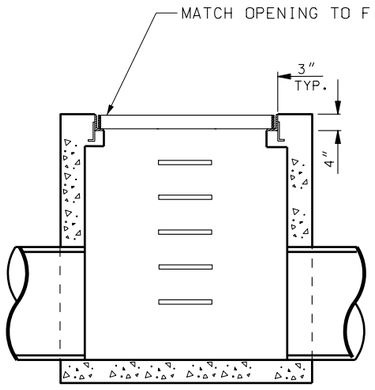
NOTES

1. USE COATED DEFORMED BILLET REINFORCING STEEL BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31, GRADE 60 RESPECTIVELY.
2. USE TYPE II CEMENT (LOW ALKALI).
3. PROVIDE $\frac{3}{4}$″ CHAMFER ON ALL EXPOSED CONCRETE CORNERS EXCEPT WHERE NOTED OTHERWISE.
4. USE CONCRETE CLASS AA(AE).
5. PROVIDE MINIMUM 2″ COVER FOR ALL REINFORCING STEEL.
6. FOR CURB AND GUTTER APPLICATIONS SEE STD DWG CB 1 AND CB 2 FOR BOX ELEVATIONS. INCLUDE CONCRETE QUANTITIES FOR CURB AND GUTTER IN ROADWAY QUANTITIES.
7. FOR MANHOLE STEPS SEE STD DWG GF 6.
8. USE 8″ LONG, # 4 DOWEL BARS @ 8″ O.C. MAX. OR EXTEND BOX REBARS 4″INTO THE CURB AND GUTTER, TO ATTACH CURB AND GUTTER TO THE BOX.
9. WHEN USING THE BOX AS AN INLET, SET EDGES OF THE BOX TO MATCH PAVEMENT FINISH GRADE AROUND BOX PERIMETER. SET TOP OF BOX SURFACE TO MATCH PAVEMENT CROSS AND LONGITUDINAL SLOPES. RESET ANY BOXES WHERE BOX SURFACE OR GRATE AND FRAME IS NOT FLUSH WITH PAVEMENT. DO NOT EXCEED $\frac{1}{4}$″ GRATE DEPRESSION.
10. CENTER PIPE IN BOX OPENING, USE NO-SHRINK GROUT TO SEAL OPENING AROUND THE PIPE, OR USE PIPE MANUFACTURER PIPE-BOOT INSTEAD.

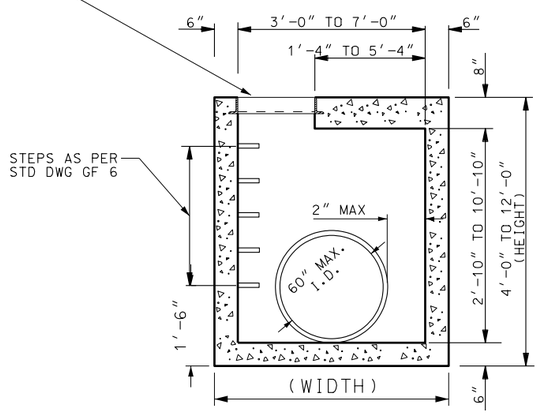
DESIGN DATA

HS 20 OR INTERSTATE ALTERNATE LOADING IN ACCORDANCE WITH AASHTO 17th EDITION SPECIFICATIONS.

STRUCTURAL STEEL:	Fy = 36,000 psi
STRUCTURAL CONCRETE:	f′c = 4,000 psi fy = 60,000 psi n = 8



SECTION A–A



SECTION B–B

QUANTITIES

(FOR DESIGN INFORMATION ONLY)

USE THE FOLLOWING EQUATIONS FOR CALCULATING VOLUME OF CONCRETE AND WEIGHT OF STEEL: (ENTER ALL DIMENSIONS IN FEET)

CONCRETE VOLUME

BOX WIDTHS OF 4′ TO 8′ & DEPTHS OF 4′ TO 12′

CONCRETE VOLUME (CU YDS) = (0.037*WIDTH+0.1853) *DEPTH+ (0.2161*WIDTH - 0.2811)

TO CALCULATE VOLUME OF CONCRETE OF PIPE HOLES
VOLUME OF HOLES (CU YDS) = 0.0083 * (PIPE DIAMETER) - 0.0929

WEIGHT OF REINFORCING STEEL

BOX WIDTHS OF 4′ UP TO 8′ & DEPTHS OF 4′ TO 12′

REBAR WEIGHT (LBS) = (4.101*WIDTH + 19.869) * DEPTH + (19.742 * WIDTH + 15.267)

CATCH BASIN / CLEANOUT BOX

GRATE AND FRAME APPLICATION

REVISIONS

NO.	DATE	APPR.	REMARKS
1	10/21/04	B.A.	NEW DRAWING. ORIGINAL CB 5 NOW GF 15.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — OCT.21.2004 DATE

CHAIRMAN STANDARDS COMMITTEE
APPROVED — OCT.21.2004 DATE

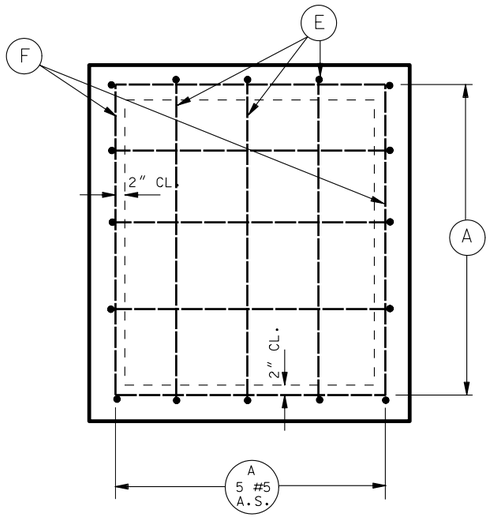
DEPUTY DIRECTOR

STANDARD CATCH BASIN AND CLEANOUT BOX

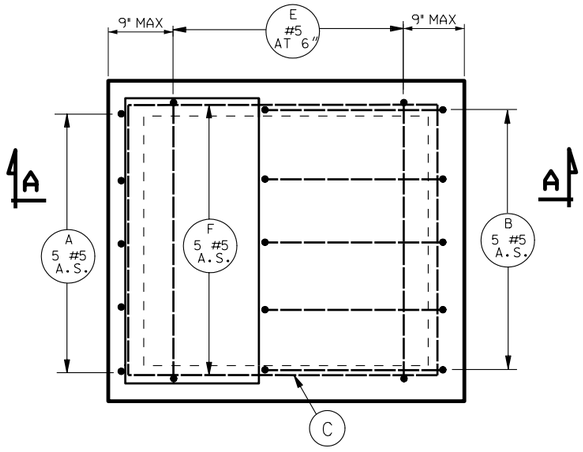
STANDARD DRAWING TITLE

STD DWG
CB 5A

DGN File:N:\Esd\Standard_Drawings\Imperial\2004Working\StandardsCommitteeFiles\October-2004\CB05A.dgn
23-NOV-2004



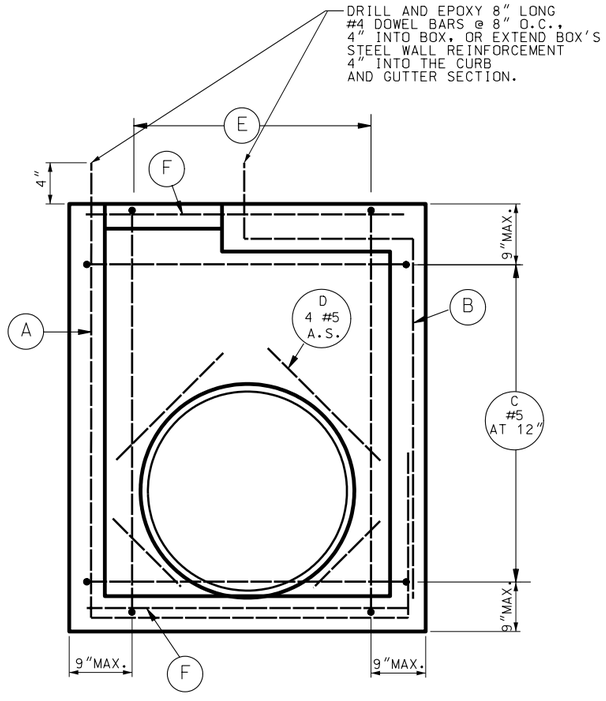
PLAN BOTTOM SLAB



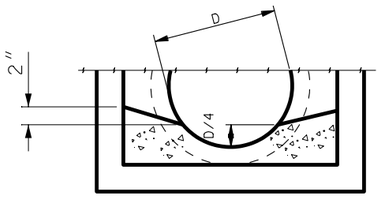
PLAN TOP SLAB

NOTES

1. PROVIDE FORMED INVERT AS SHOWN IN THE DETAIL ON THIS SHEET.
2. FIELD CUT AND BEND REINFORCING STEEL AS NECESSARY TO CLEAR PIPE(S) AND GRATE OPENINGS, AND MAINTAIN 2" COVER.
3. SEE STD DWG CB 5A FOR ALLOWABLE DIMENSIONS.
4. MAXIMUM PIPE DIMENSIONS ARE FOR PIPES PERPENDICULAR TO WALLS OF BOX. DETERMINE CLEARANCES FOR SKEWED PIPES.
5. FOR MANHOLE STEP DETAILS, SEE STD DWG GF 6.
6. ALL REINFORCING BARS TO BE #5 BARS @ 12" UNLESS OTHERWISE SHOWN.
7. EXTEND BARS A AND B INTO CURB AND GUTTER WHEN CASTING FOR CATCH BASIN ON STD DWG CB 1 AND CB 2.
8. REPAIR ANY DAMAGE OR CUTS TO EPOXY COATING.



SECTION A-A



FORMED INVERT

REINFORCING STEEL LAYOUT

PROVIDE 2" MIN. COVER TO ALL BARS

BAR A	BAR B	BAR C	BAR D	BAR E	BAR F
		8"		8"	

NO.	DATE	APPR.	REMARKS
1	10/21/04	B.A.	NEW DRAWING.

REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION

STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — OCT.21,2004 — DATE

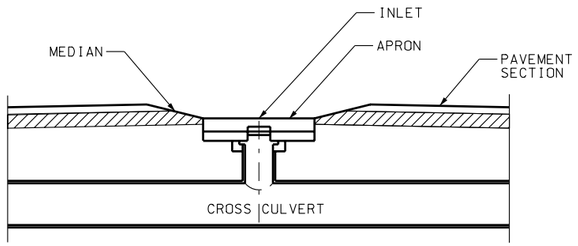
CHAIRMAN STANDARDS COMMITTEE
APPROVED — OCT.21,2004 — DATE

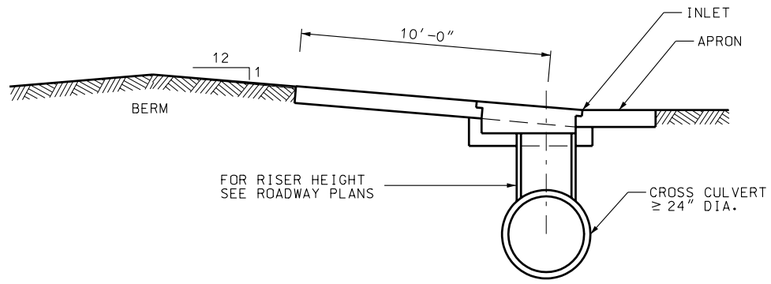
DEPUTY DIRECTOR

STANDARD CATCH BASIN AND CLEANOUT BOX SECTION

STANDARD DRAWING TITLE

STD DWG
CB 5B





MEDIAN DROP INLET AND APRON SITUATION LAYOUT

NOTES

1. USE COATED BILLET REINFORCING STEEL BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
2. USE 24" DIA. PIPE RISER UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3. TYPE II CEMENT (LOW ALKALI) REQUIRED.
4. FOR GRATE AND FRAME SEE STD DWG GF 3.
5. CONSTRUCT A BERM AS PART OF DROP INLET. TYPE "B" DROP INLET ON STD DWG 7A AND 7B DOES NOT REQUIRE A BERM.
6. USE STRAIGHT #5 REBAR AT 18" ON CENTER, EXCEPT AS NOTED OTHERWISE. CUT AND FIELD BEND BARS WHERE NECESSARY TO CLEAR PIPES.
7. REPAIR ANY DAMAGE OR CUTS TO EPOXY COATING.

DESIGN DATA

HS 20 OR INTERSTATE ALTERNATE LOADING IN ACCORDANCE WITH AASHTO 17th EDITION SPECIFICATIONS.

STRUCTURAL STEEL: Fy = 36,000 psi

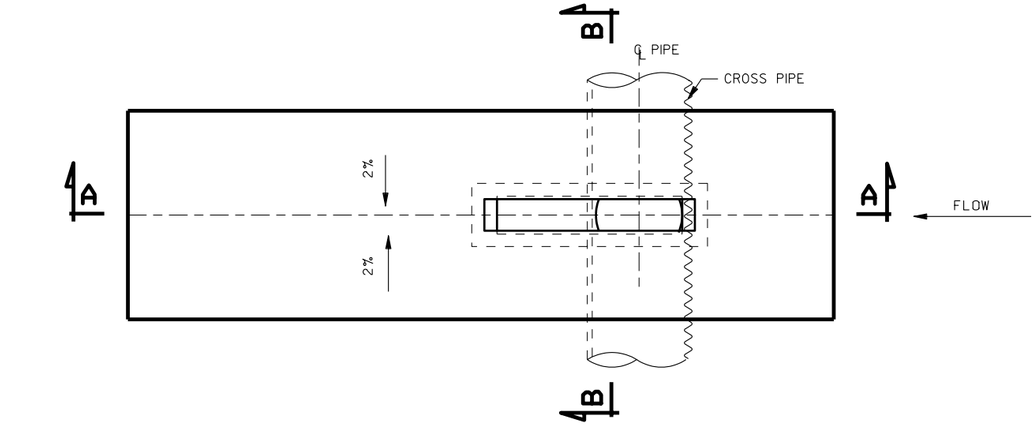
STRUCTURAL CONCRETE: f'c = 4,000 psi
fy = 60,000 psi
n = 8

QUANTITIES:

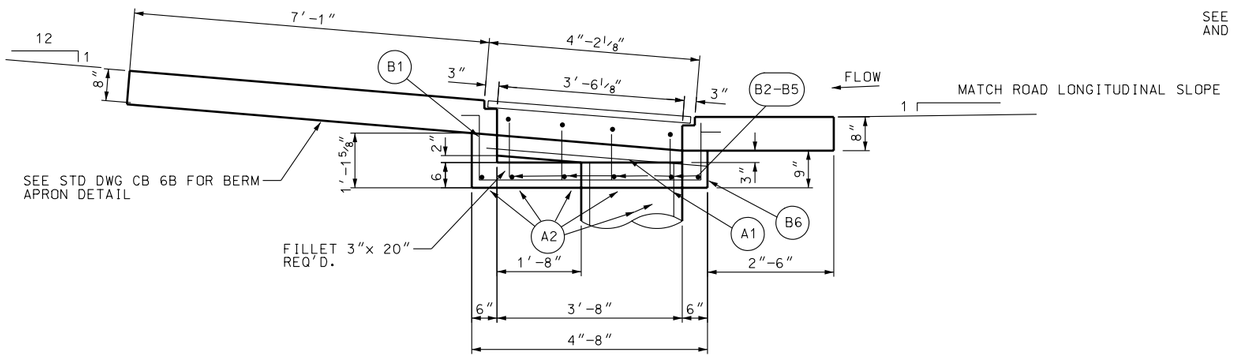
(SEE TABLES IN STANDARD DRAWING CB 6B)

APRON DETAIL:

(SEE STANDARD DRAWING CB 6B)

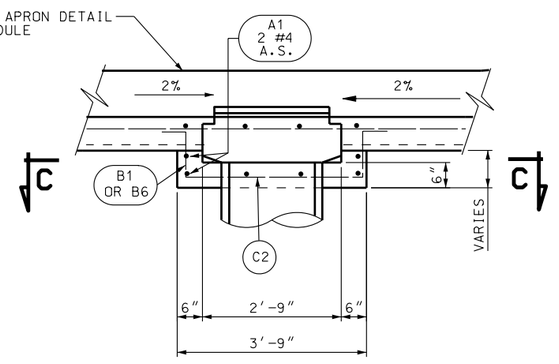


PLAN



SECTION A-A

SECTION C-C



SECTION B-B

NO.	DATE	REMARKS
1	10/21/04	B.A. NEW DRAWING. ORIGINAL CB 6A THRU CB 6H DELETED.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — OCT.21.2004 DATE

CHAIRMAN STANDARDS COMMITTEE APPROVED — OCT.21.2004 DATE

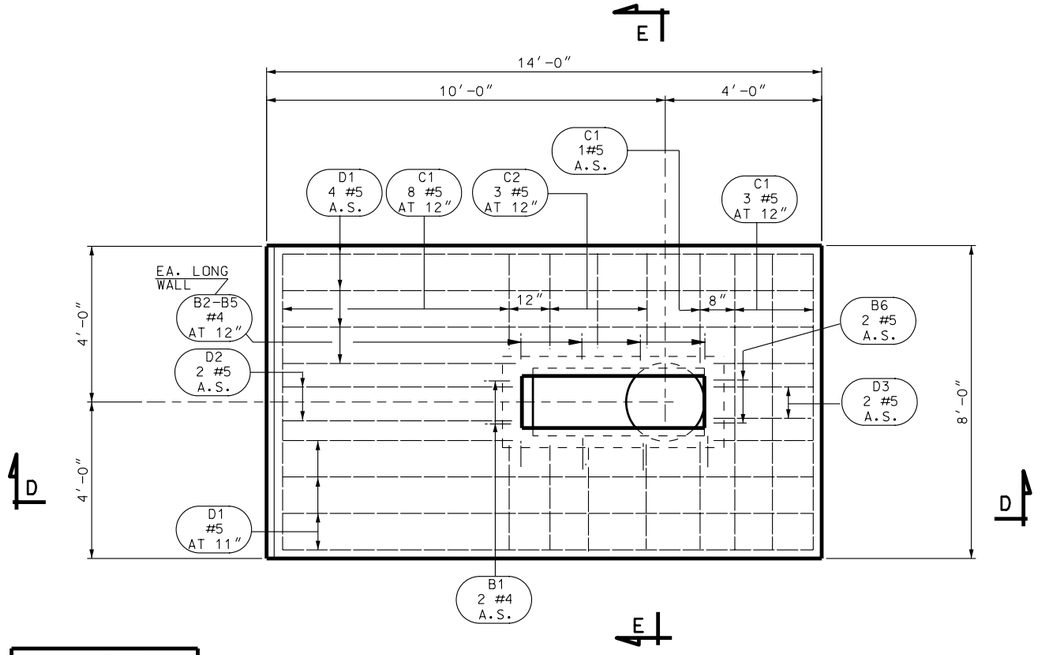
DEPUTY DIRECTOR

DROP INLET TYPE "A"

STANDARD DRAWING TITLE

STD DWG
CB 6A

DGN File: N:\Esa\Standard Drawings\Imperial\2004Working\StandardsCommitteeFiles\October2004\CB06A.dgn
23-NOV-2004



PLAN

QUANTITIES (FOR INFORMATION ONLY)	
REINF. STEEL (LB.)	CONC. (CU.YD.)
300	2.7

REINFORCING STEEL SCHEDULE

A1			A2			A3		
SIZE	NO.	LENGTH	SIZE	NO.	LENGTH	SIZE	NO.	LENGTH
4	4	4′-4″	4	5	2′-8″	4	4	1′-6″

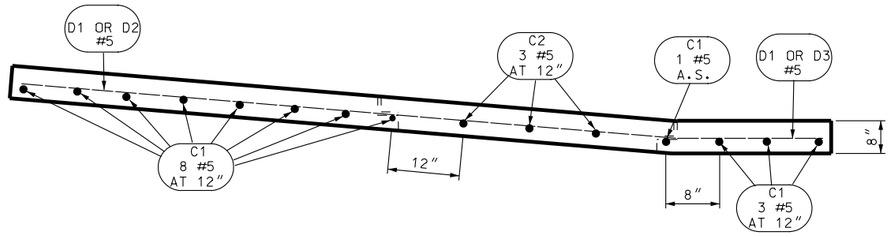
B1			B2			B3			B4			B5			B6		
SIZE	NO.	a 1′-2	SIZE	NO.	a 1′-2	SIZE	NO.	a 1′-2	SIZE	NO.	a 1′-2	SIZE	NO.	a 1′-2	SIZE	NO.	a 1′-2
4	4	1′-6″	4	2	1′-5″	4	2	1′-4″	4	2	1′-3″	4	2	1′-2″	4	4	1′-0″

C1			C2		
SIZE	NO.	LENGTH	SIZE	NO.	LENGTH
4	12	7′-8″	5	6	3′-5″

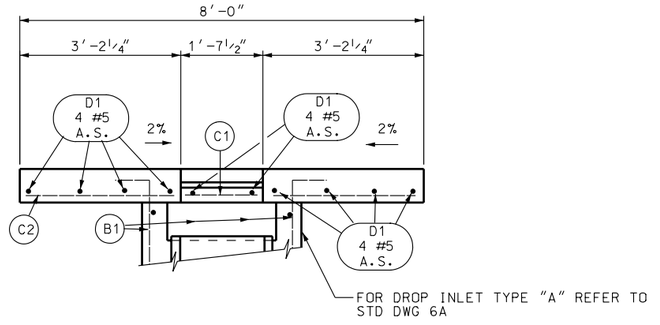
D1			D2			D3		
SIZE	NO.	LENGTH	SIZE	NO.	LENGTH	SIZE	NO.	LENGTH
5	8	13′-8″	5	2	5′-5″	5	2	3′-8″

NOTES:

1. CENTER APRON ON CHANNEL FLOWLINE.
2. PLACE 6″ OF UNTREATED BASE COURSE AND COMPACT PER UDOT STANDARD SPECIFICATIONS UNDER EACH APRON PRIOR TO FORMING.
3. FIELD BEND D1 BARS AS REQUIRED TO CONFORM TO SLOPE.
4. PROVIDE 2″ CONCRETE COVER TO REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
5. USE BERM APRON WITH DROP INLET TYPE "A."
6. REPAIR ANY DAMAGE OR CUTS TO EPOXY COATING.



SECTION D-D



SECTION E-E

REVISIONS			
NO.	DATE	APPR.	REMARKS
1	10/21/04	B.A.	NEW DRAWING. ORIGINAL CB 6A THRU CB 6H DELETED.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — OCT.21,2004 DATE

CHAIRMAN STANDARDS COMMITTEE
APPROVED — OCT.21,2004 DATE

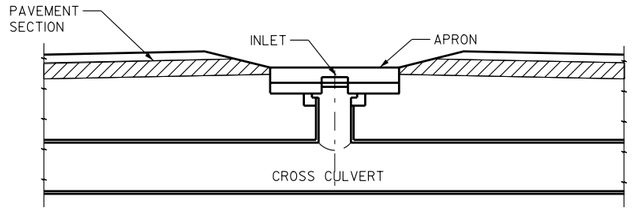
DEPUTY DIRECTOR

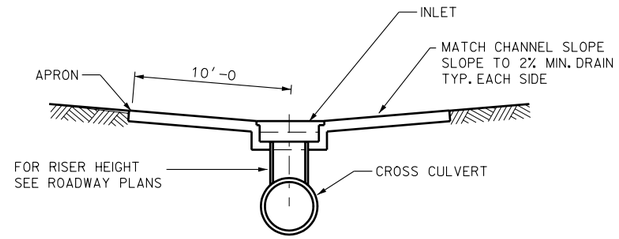
BERM APRON
WITH DROP INLET
TYPE "A"

STANDARD DRAWING TITLE

STD DWG
CB 6B

DGN File:N:\Eng\Standard Drawings\Imperial\2004Working\StandardsCommitteeFiles\October2004\CB06B.dgn
23-NOV-2004





MEDIAN DROP INLET SITUATION LAYOUT

NOTES

1. USE COATED DEFORMED BILLET STEEL BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
2. USE 18" DIA. PIPE RISER UNLESS OTHERWISE SPECIFIED.
3. TYPE II CEMENT (LOW ALKALI) REQUIRED.
4. FOR GRATE AND FRAME SEE STD DWG GF 3.
5. USE STRAIGHT #5 REBAR AT 18" CENTERS EXCEPT AS NOTED OTHERWISE. CUT AND FIELD BEND BARS WHERE NECESSARY TO CLEAR PIPES.
6. REPAIR ANY DAMAGE OR CUTS TO EPOXY COATING.

DESIGN DATA

HS 20 OR INTERSTATE ALTERNATE LOADING IN ACCORDANCE WITH AASHTO 17th EDITION SPECIFICATIONS.

STRUCTURAL STEEL: Fy = 36,000 psi

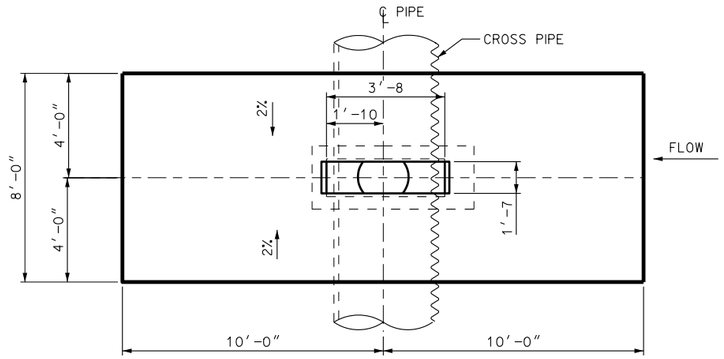
STRUCTURAL CONCRETE: f'c = 4,000 psi
fy = 60,000 psi
n = 8

QUANTITIES

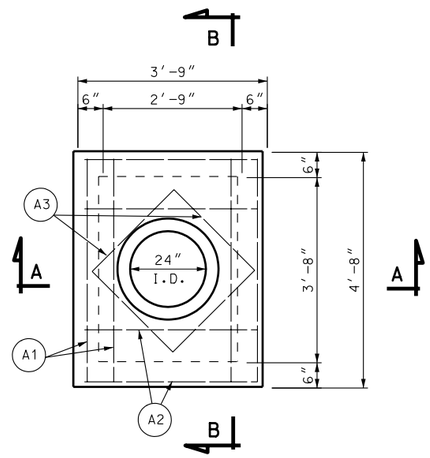
SEE TABLES ON STD DWG CB 7B

APRON

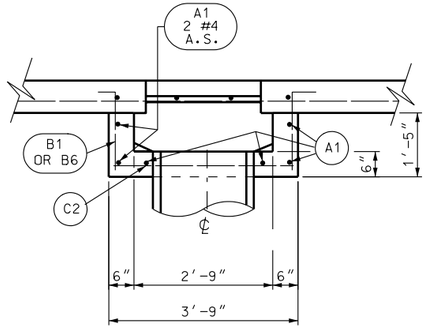
SEE STD DWG CB 7B



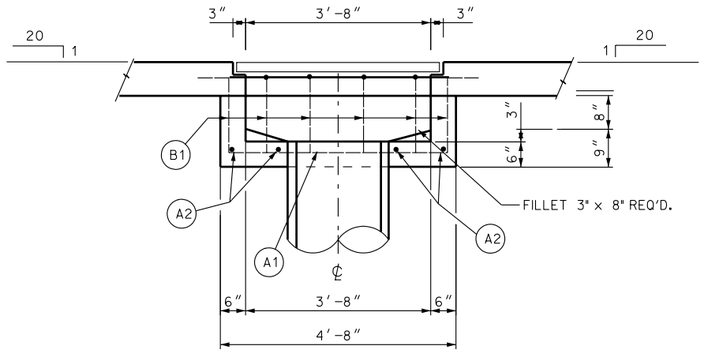
DROP INLET AND APRON LAYOUT PLAN



DROP INLET PLAN VIEW



SECTION B-B



SECTION A-A

REVISIONS

NO.	DATE	APPR.	REMARKS
1	10/21/04	B.A.	NEW DRAWING. ORIGINAL CB 7 DELETED.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — OCT.21.2004 DATE

CHAIRMAN STANDARDS COMMITTEE APPROVED — OCT.21.2004 DATE

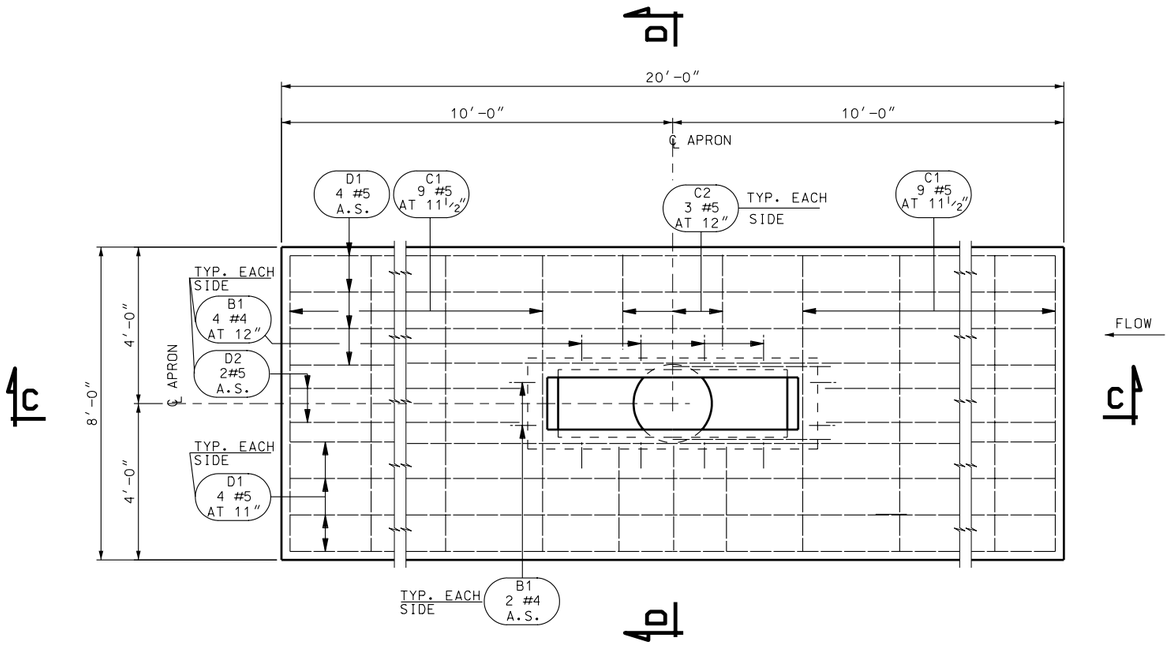
DEPUTY DIRECTOR

DROP INLET TYPE "B"

STANDARD DRAWING TITLE

STD DWG
CB 7A

DGN File:N:\Esd\Standard_Drawings\Imperial\2004Working\StandardsCommitteeFiles\October-2004\CB07A.dgn
23-NOV-2004



PLAN

NOTES:

1. CENTER APRON ON CHANNEL FLOWLINE.
2. PLACE 6″ OF UNTREATED BASE COURSE AND COMPACT PER UDOT STANDARD SPECIFICATIONS UNDER EACH APRON PRIOR TO FORMING.
3. FIELD BEND D1 BARS AS REQUIRED TO CONFORM TO SLOPE.
4. PROVIDE 2″ CONCRETE COVER TO REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
5. USE NORMAL APRON WITH DROP INLET TYPE "B."
6. REPAIR ANY DAMAGE OR CUTS TO EPOXY COATING.

QUANTITIES *(FOR INFORMATION ONLY)*	
REINF. STEEL *(LB.)*	CONC. *(CU.YD.)*
606	3.9

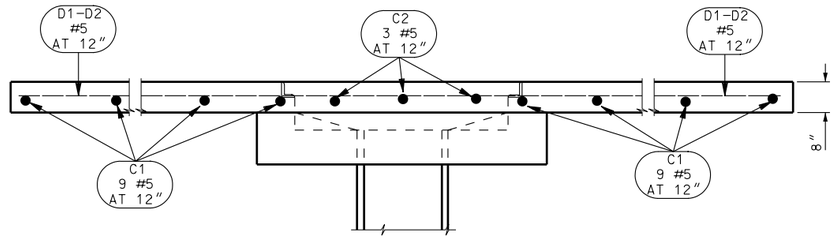
REINFORCING STEEL SCHEDULE

A1			A2			A3		
SIZE	NO.	LENGHT	SIZE	NO.	LENGHT	SIZE	NO.	LENGHT
4	4	4′-4″	4	8	3′-5″	4	4	2′-0″

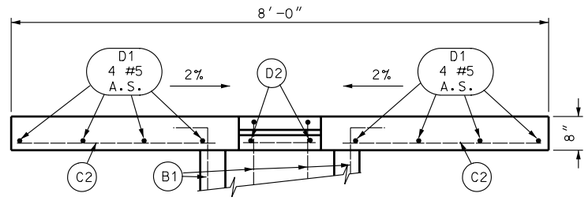
B1		
SIZE	NO.	a (1′-2″)
4	12	VARIES

C1			C2		
SIZE	NO.	LENGHT	SIZE	NO.	LENGHT
5	18	19′-6″	5	3	2′-10″

D1			D2		
SIZE	NO.	LENGHT	SIZE	NO.	LENGHT
5	8	19′-8″	5	4	5′-5″



SECTION C-C



SECTION D-D

REVISIONS			
NO.	DATE	APPR.	REMARKS
1	10/21/04	B.A.	NEW DRAWING.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — OCT.21.2004 DATE

CHAIRMAN STANDARDS COMMITTEE APPROVED — OCT.21.2004 DATE

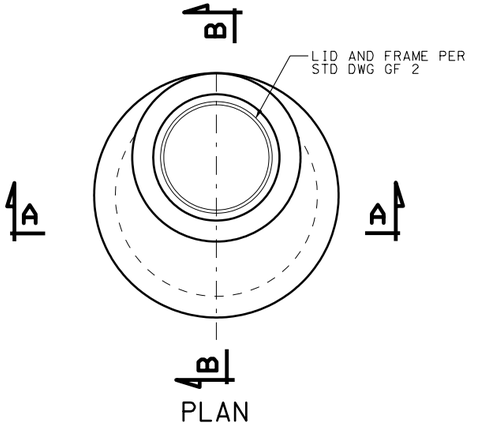
DEPUTY DIRECTOR

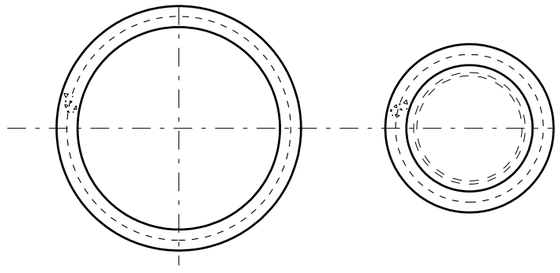
NORMAL APRON WITH DROP INLET TYPE "B"

STANDARD DRAWING TITLE

STD DWG
CB 7B

DGN File:N:\Esd\Standard Drawings\Imperial\2004Working\StandardsCommitteeFiles\October-2004\CB07B.dgn
23-NOV-2004





NOTES:

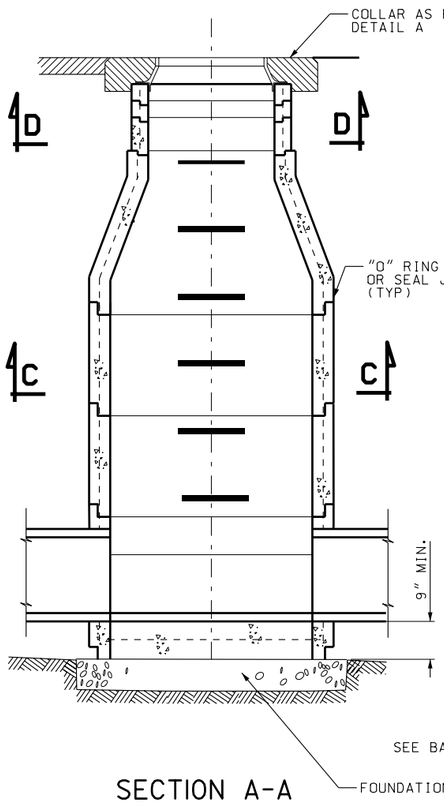
1. USE 3",4",6", OR 8" HIGH GRADE RINGS.
2. USE SECTIONS 1'-0", 1'-6", 2'-0", 3'-0" OR 4'-0" HIGH.
3. IF THE REQUIRED RAISE IS MORE THAN 1'-0", REMOVE THE CONE AND ADD RISER RINGS TO THE RISER SECTION. COMPACT BACKFILL TO A MINIMUM OF 90% DENSITY AND REPLACE THE ROADWAY SURFACING IN KIND.
4. PREVENT DEBRIS FROM FALLING INTO THE MANHOLE DURING CONSTRUCTION. CLEAN AND REMOVE ANY DEBRIS IN THE MANHOLE AND CONNECTING PIPES.
5. REPAIR ANY DAMAGE OR REPLACE DAMAGED MANHOLES TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE DEPARTMENT.
6. USE COATED DEFORMED BILLET REINFORCING STEEL BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
7. FOR LID AND FRAME SEE STD DWG GF 2.
8. USE CLASS AA (AE) CONCRETE.
9. USE TYPE II CEMENT (LOW ALKALI).
10. PROVIDE 2" CONCRETE COVER TO REINFORCING STEEL.
11. PROVIDE HYDRAULIC CEMENT MORTAR ACCORDING TO ASTM C 185 AND PRECAST MANHOLE SECTIONS PER ASTM C 478.
12. PLACE STEPS BEGINNING 2' BELOW FINSHED GRADE AS PER STD DWG GF 6.
13. SUBMIT DESIGN FOR MANHOLES GREATER THAN 5'IN DIAMETER OR DEEPER THAN 18'TO ENGINEER FOR APPROVAL.
14. DO NOT OVEREXCAVATE. PLACE 6" MIN. UTBC BEDDING ACCORDING TO SECTION 02721 ON FIRM SUBGRADE. DO NOT USE CRUSHED ROCK IN ACTIVE WATERTABLE WITHOUT APPROVAL OF THE ENGINEER.

DESIGN DATA

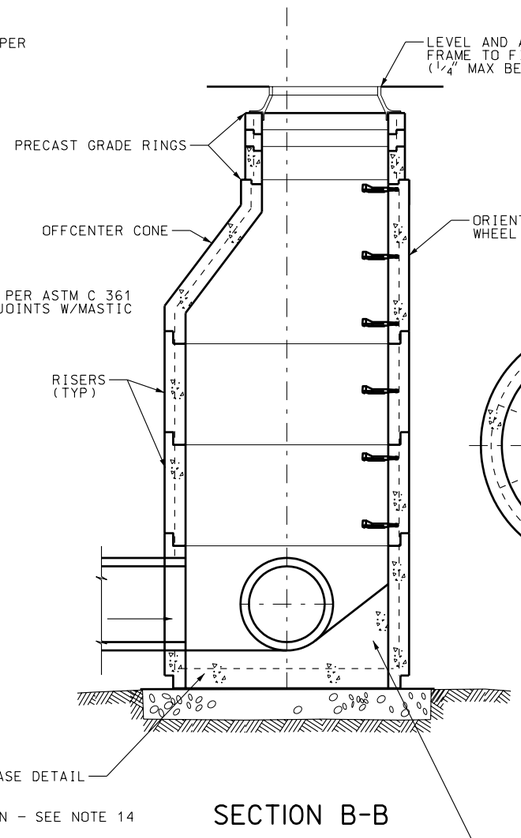
HS 20 OR INTERSTATE ALTERNATE LOADING IN ACCORDANCE WITH AASHTO 17th EDITION SPECIFICATIONS.

STRUCTURAL STEEL: Fy = 36,000 psi

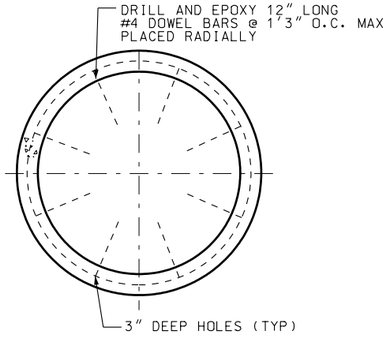
STRUCTURAL CONCRETE: f'c = 4,000 psi
fy = 60,000 psi
n = 8



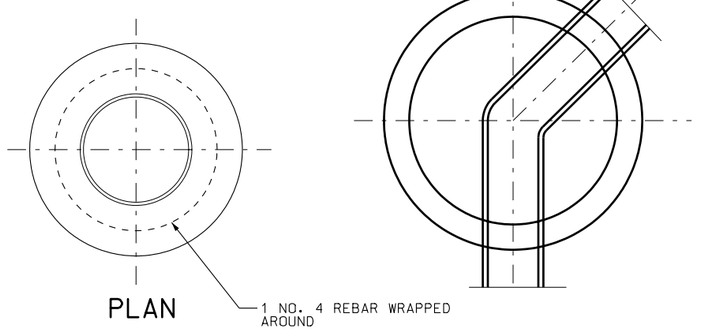
SECTION A-A

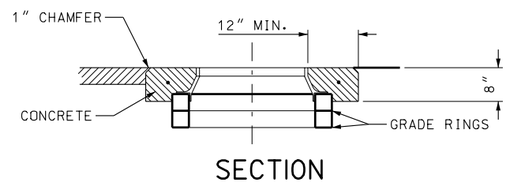


SECTION B-B



BASE DETAIL





SECTION

DETAIL A

	MAX. PIPE O.D.	
DIA	45° DEFL	90° DEFL
4'	31"	25"
5'	42"	32"

PRECAST SECTIONS	MAX. HEIGHT
GRADE RINGS	8"
COMBINED GRADE RINGS	18"
CONES	36"
RISERS	48"

REVISIONS

NO.	DATE	APPR.	REMARKS
1	10/21/04	B.A.	NEW DRAWING.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — OCT.21,2004 DATE

CHAIRMAN STANDARDS COMMITTEE APPROVED — OCT.21,2004 DATE

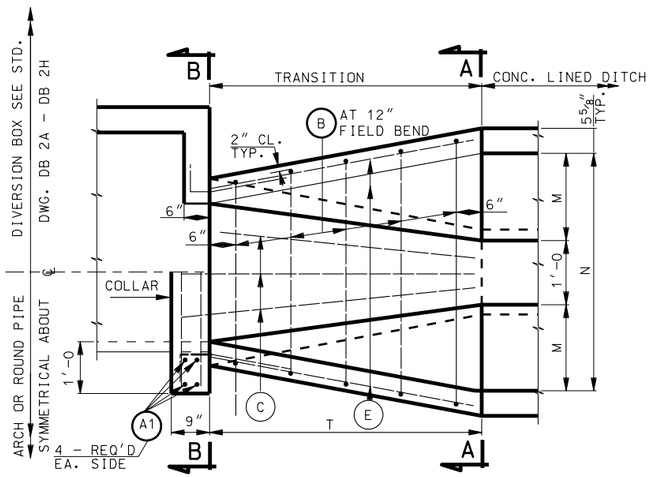
DEPUTY DIRECTOR

STANDARD MANHOLE

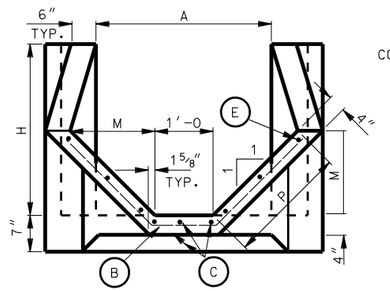
STD DWG
CB 11

SCHEDULE

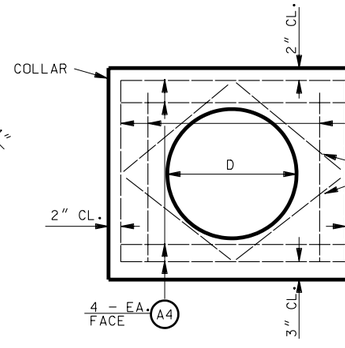
LINE	PIPE DIA. (IN.)	PIPE ARCH (IN.)		DIVERSION BOX		DIMENSIONS					TRANSITION ONE EACH																								COLLAR								LINE
											B1				B2				B3				B4				B5				B6				B7				C		E		A1		A2		A3		A4		
	D	S	R	H	A	H	T	M	N	P	a	b	f	LENGTH	a	b	f	LENGTH	a	b	f	LENGTH	a	b	f	LENGTH	a	b	f	LENGTH	a	b	f	LENGTH	a	b	f	LENGTH	a	b	f	LENGTH	LENGTH	NO.BARS	A	LENGTH	NO.BARS	LENGTH	NO.BARS	LENGTH	NO.BARS	LENGTH	NO.BARS	
1	12″	--	--	1′-9	12″	1′-9	4′-0	8″	2′-4	$11\frac{3}{8}$″	1′-6	1′-7	93°	4′-8	1′-5	1′-4	101°	4′-1	1′-3	1′-2	111°	3′-7	1′-2	1′-0	126°	3′-2	--	--	--	--	--	--	--	--	--	--	--	--	4′-5	1	3′-10	5′-10	4	2′-0	8	1′-4	8	--	--	2′-8	8	1
2	18″	--	--	2′-3	18″	2′-3	4′-0	1′-0	3′-0	1′-5	1′-11	2′-1	94°	6′-1	1′-9	1′-10	102°	5′-5	1′-6	1′-7	114°	4′-8	1′-3	1′-6	128°	4′-3	--	--	--	--	--	--	--	--	--	--	--	--	4′-5	2	3′-10	5′-10	4	2′-6		1′-10		--	--	3′-2		2
3	24″	--	--	2′-9	24″	2′-9	4′-0	1′-6	4′-0	$2′-1\frac{1}{2}$	2′-5	2′-7	94°	7′-7	2′-0	2′-4	104°	6′-8	1′-8	2′-2	115°	6′-0	1′-4	2′-1	128°	5′-6	--	--	--	--	--	--	--	--	--	--	--	--	4′-5	2	3′-10	5′-10	6	3′-0		2′-6		--	--	3′-8		3
4	30″	--	--	3′-3	30″	3′-3	5′-0	1′-10	4′-8	$2′-7\frac{1}{8}$	2′-10	3′-1	93°	9′-0	2′-5	2′-10	101°	8′-1	2′-1	2′-8	110°	7′-5	1′-7	2′-7	120°	6′-9	1′-4	2′-7	130°	6′-6	--	--	--	--	--	--	--	--	5′-5	3	4′-10	6′-10	6	3′-6		2′-8		--	--	4′-2		4
5	36″	--	--	3′-9	36″	3′-9	6′-0	2′-3	5′-6	$3′-2\frac{1}{8}$	3′-4	3′-7	93°	10′-6	2′-11	3′-4	100°	9′-7	2′-7	3′-2	107°	8′-11	2′-2	3′-2	115°	8′-6	1′-9	3′-1	123°	7′-11	1′-4	3′-2	131°	7′-8	--	--	--	--	6′-5	3	5′-10	7′-10	8	4′-0		2′-10		--	--	4′-8		5
6	42″	--	--	4′-3	42″	4′-3	7′-0	2′-8	6′-4	$3′-9\frac{1}{4}$	3′-10	4′-2	93°	12′-2	3′-5	3′-11	98°	11′-3	3′-0	3′-10	105°	10′-8	2′-8	3′-8	111°	10′-0	2′-2	3′-8	118°	9′-6	1′-9	3′-8	125°	9′-1	1′-4	3′-8	132°	8′-8	7′-5	4	6′-10	8′-10	8	4′-6		3′-2		--	--	5′-2		6
7	48″	--	--	4′-9	48″	4′-9	7′-0	3′-2	7′-4	$4′-5\frac{3}{4}$	4′-4	4′-8	93°	13′-8	3′-10	4′-5	99°	12′-8	3′-4	4′-4	105°	12′-0	2′-10	4′-3	112°	11′-4	2′-4	4′-3	119°	10′-10	1′-10	4′-3	125°	10′-4	1′-4	4′-4	132°	10′-0	7′-5	4	6′-10	8′-10	10	5′-0		3′-5	8	--	--	5′-8		7
8	--	36″	22″	2′-7	36″	2′-7	4′-0	1′-8	4′-4	$2′-4\frac{1}{4}$	3′-3	2′-5	95°	8′-1	2′-8	2′-4	106°	7′-4	2′-1	2′-3	117°	6′-7	1′-5	2′-4	129°	6′-1	--	--	--	--	--	--	--	--	--	--	--	--	4′-5	3	3′-10	5′-10	4	2′-10		3′-0	4	2′-3	4	4′-8		8
9	--	43″	27″	3′-0	43″	3′-0	4′-0	2′-2	5′-4	$3′-0\frac{3}{4}$	3′-9	2′-11	95°	9′-7	3′-0	2′-9	107°	8′-6	2′-3	2′-10	119°	7′-11	1′-6	2′-11	130°	7′-4	--	--	--	--	--	--	--	--	--	--	--	--	4′-5	4	3′-10	5′-10	4	3′-3		3′-2		2′-5		5′-3		9
10	--	50″	31″	3′-4	50″	3′-4	5′-0	2′-6	6′-0	$3′-6\frac{3}{8}$	4′-4	3′-3	94°	10′-10	3′-8	3′-2	104°	10′-0	2′-11	3′-2	113°	9′-3	2′-3	3′-3	123°	8′-9	1′-6	3′-5	131°	8′-4	--	--	--	--	--	--	--	--	5′-5	5	4′-10	6′-10	6	3′-7		3′-5		2′-5		5′-10		10
11	--	58″	36″	3′-9	58″	3′-9	6′-0	3′-0	7′-0	4′-3	5′-1	3′-8	94°	12′-5	4′-4	3′-8	102°	11′-8	3′-7	3′-8	110°	10′-11	2′-11	3′-9	118°	10′-5	2′-3	3′-11	125°	10′-1	1′-6	4′-1	132°	9′-8	--	--	--	--	6′-5	5	5′-10	7′-10	8	4′-0		3′-6		2′-7		6′-6		11
12	--	65″	40″	4′-1	65″	4′-1	6′-0	3′-4	7′-8	$4′-8\frac{1}{2}$	5′-7	4′-0	94°	13′-7	4′-9	3′-11	102°	12′-7	3′-11	4′-0	110°	11′-11	3′-2	4′-1	118°	11′-4	2′-4	4′-4	125°	11′-0	1′-7	4′-7	132°	10′-9	--	--	--	--	6′-5	6	5′-10	7′-10	8	4′-4		4′-0		3′-5		7′-1		12
13	--	72″	44″	4′-5	72″	4′-5	7′-0	3′-9	8′-6	$5′-3\frac{5}{8}$	6′-2	4′-4	93°	14′-10	5′-5	4′-4	100°	14′-1	4′-8	4′-4	107°	13′-4	3′-10	4′-5	113°	12′-8	3′-1	4′-7	119°	12′-3	2′-4	4′-9	125°	11′-10	1′-6	5′-0	131°	11′-6	7′-5	6	6′-10	8′-10	10	4′-8	8	4′-0	4	3′-0	4	7′-8	8	13



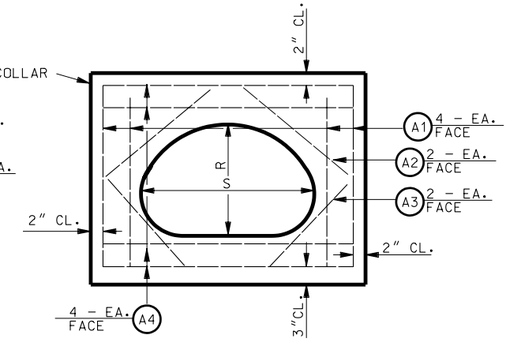
PLAN



SECTION A–A
(DIVERSION BOX INSTALLATION)



SECTION B–B
(ROUND PIPE INSTALLATION)



SECTION B–B
(ARCH PIPE INSTALLATION)

NOTES:

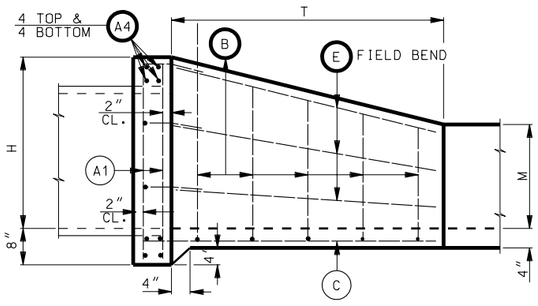
1. USE COATED DEFORMED BILLET REINFORCING STEEL BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60.
2. TYPE II CEMENT (LOW ALKALI) REQUIRED.
3. DEDUCT CONCRETE DISPLACED BY PIPE FROM THOSE CONCRETE QUANTITIES GIVEN IN SCHEDULE.
4. ADJUST CONCRETE QUANTITIES ACCORDINGLY IF PIPE SIZES OTHER THAN SHOWN ARE USED OR IF PIPES ARE SKEWED.
5. USE #4 REINFORCING STEEL SPACED EQUALLY AT 12″±.

DESIGN DATA

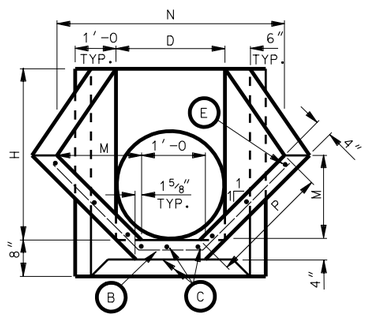
HS 20-44 OR INTERSTATE ALTERNATE LOADING IN ACCORDANCE WITH CURRENT AASHTO SPECIFICATIONS AND INTERIM SPECIFICATIONS:

fc = 1,400 psi
fs = 24,000 psi
n = 8

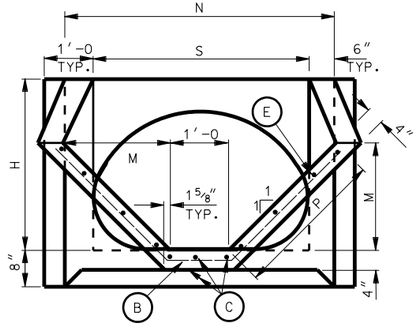
QUANTITIES
(SEE SCHEDULE)



ELEVATION



SECTION A–A
(ROUND PIPE INSTALLATION)



SECTION A–A
(ARCH PIPE INSTALLATION)

LINE	REINF. STEEL TRANSITION Lb.	REINF. STEEL COLLAR Lb.	CONCRETE TRANSITION Cu.Yd.	CONCRETE COLLAR Cu.Yd.
1	29	32.1	0.2614	0.2014
2	35	40.1	0.3351	0.2836
3	47	49.1	0.4219	0.3796
4	64	55.2	0.6174	0.4896
5	90	61.5	0.8587	0.6134
6	115	69.6	1.1392	0.7511
7	133	75.3	1.2887	0.9028
8	43	54.0	0.4503	0.4514
9	50	60.3	0.5325	0.5687
10	77	66.9	0.7429	0.6852
11	107	72.4	1.0151	0.8383
12	115	81.8	1.1100	0.9786
13	150	85.6	1.4140	1.1296

NO.	DATE	APPR.	REMARKS
1	10/21/04	B.A.	NEW DRAWING. PREVIOUSLY CB 3.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — OCT.21.2004 DATE

CHAIRMAN STANDARDS COMMITTEE APPROVED — OCT.21.2004 DATE

DEPUTY DIRECTOR

STANDARD TRANSITION CONCRETE LINED DITCH TO PIPE OR DIVERSION BOX

STANDARD DRAWING TITLE

STD DWG
DB 4

DGN File: N:\Esd\Standard_Drawings\Imperial\2004Working\StandardsCommitteeFiles\October2004\DB04.dgn
23-NOV-2004

TABLE 1: HDPE AND PVC PIPE MAXIMUM FILL HEIGHT

PIPE SIZE DIA. inch	PIPE TYPE						
	HDPE SMOOTH LINED OR CORRUGATED (AASHTO M 294)	SMOOTH WALL (SOLID) WALL THICKNESS inches					POLYVINYL CHLORIDE (PVC)
		0.6	0.85	0.92	1.15	1.38	
	MAX.FILL HEIGHT ft.						
18	17		46				24
24	15			34			25
30	14				34		23
36	12					34	22
42	12						
48	11						
60	11						

NOTES:

1. MAXIMUM FILL HEIGHT MEASURED FROM TOP OF PIPE TO TOP OF PAVEMENT SURFACE AT HIGHEST FILL SECTION.

2. FOR MINIMUM FILL HEIGHT SEE STD DWG DG 4.

REVISIONS

NO.	DATE	APPR.	REMARKS
1	10/21/04	B.A.	DRAWING REVISED TO INCLUDE REMOVAL OF END SECTION. TITLE CHANGED.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — OCT.21.2004 DATE

CHAIRMAN STANDARDS COMMITTEE
APPROVED — OCT.21.2004 DATE

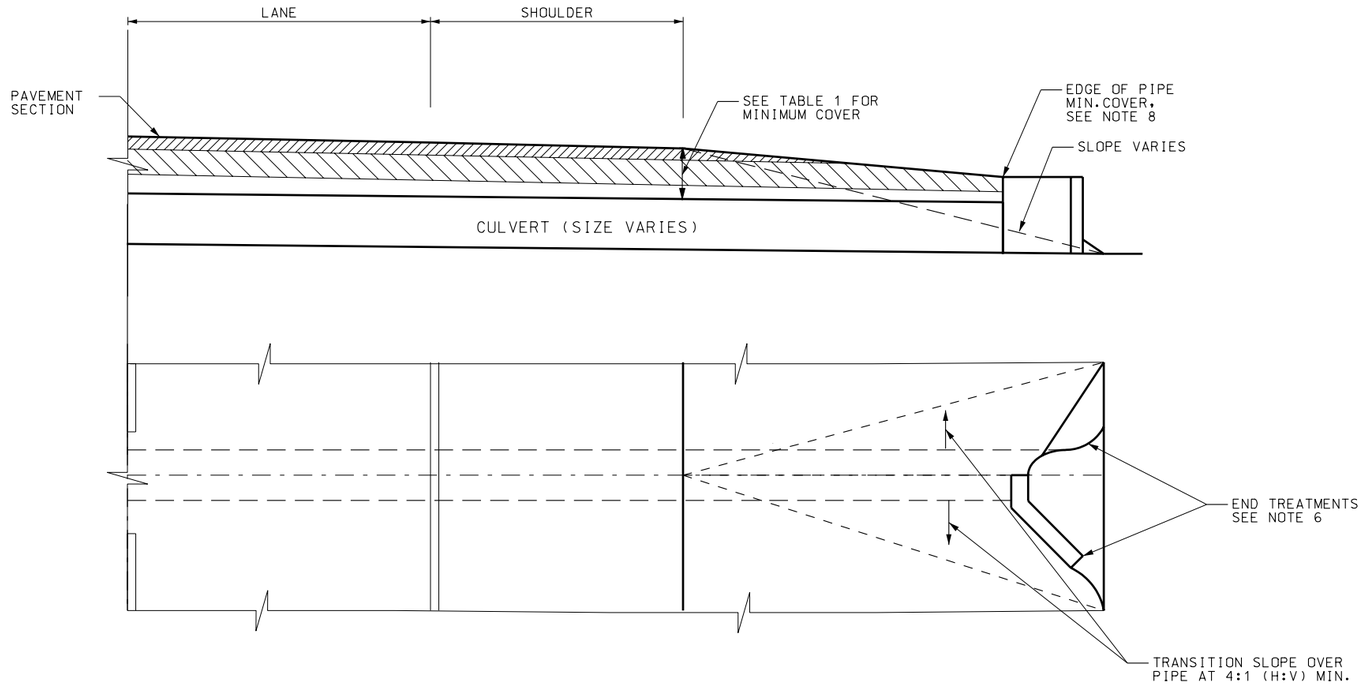
DEPUTY DIRECTOR

MAXIMUM FILL HEIGHT FOR HDPE AND PVC PIPES

STANDARD DRAWING TITLE

STD DWG
DG 3

PIPE MINIMUM COVER



NOTES:

1. GRADE GROUND UNIFORMLY AROUND THE PIPE.
2. PLASTIC PIPE INCLUDES POLYETHYLENE AND POLYVINYL CHLORIDE.
3. THE MINIMUM COVER FOR HDPE PIPES OF DIAMETER LARGER THAN 48" IS HALF THE PIPE DIAMETER (D/2).
4. PROTECT PIPE DURING CONSTRUCTION.
5. ENGINEER REVIEWS AND APPROVES ANY VARIATION TO MINIMUM COVER.
6. PLACE HEADWALL ON ALL PIPE 36" DIA. AND ABOVE, AND ON ALL FLEXIBLE PIPES (PLASTIC AND METAL PIPES).
7. USE METAL END SECTION ON ALL FLEXIBLE PIPES BELOW 36" IN DIAMETER.
8. 1' MIN. COVER WITH HEAD WALL, OR 6" MIN. COVER 1' FROM EDGE OF END SECTION WHEN NO HEAD WALL IS REQUIRED.

TABLE 1: MINIMUM COVER

SURFACE TYPE	CORRUGATED METAL PIPES AND PIPE ARCHES	STRUCTURAL PLATE PIPES AND PIPE ARCHES	REINFORCED CONCRETE PIPES	PLASTIC PIPES (SEE NOTE 2 AND 3)
FLEXIBLE PAVEMENTS OR UNPAVED	THE GREATER OF 1/5 (DIA. OR SPAN) OR 2'MIN.	THE GREATER OF 1/8 (DIA. OR SPAN) OR 2'MIN.	1'-6"MIN.	2' MIN.
RIGID PAVEMENTS	1/5 (DIA. OR SPAN) OR 1'-6"MIN.	1/8 (DIA. OR SPAN) OR 1'-6"MIN.	1'-6"MIN.	2'MIN.

NOTE: DRAWING NOT TO SCALE

NO.	DATE	APPR.	REMARKS
1	10/21/04	B.A.	DRAWING REVISED, TITLE CHANGED.

REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — OCT.21.2004 DATE

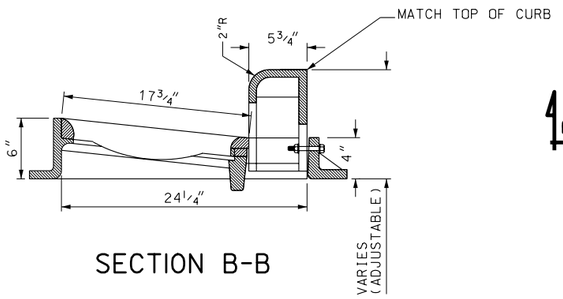
CHAIRMAN STANDARDS COMMITTEE
APPROVED — OCT.21.2004 DATE

DEPUTY DIRECTOR

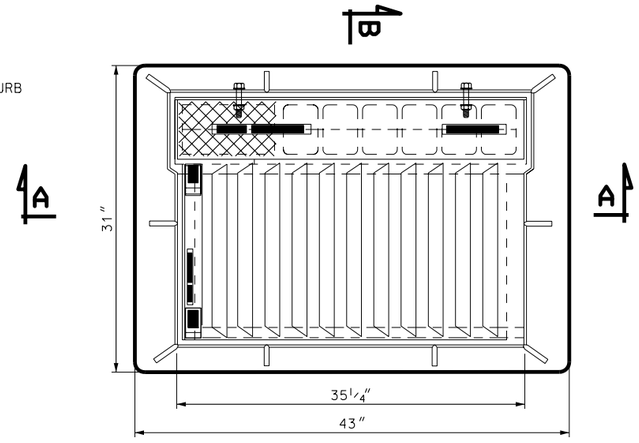
PIPE MINIMUM COVER
STANDARD DRAWING TITLE

STD DWG
DG 4

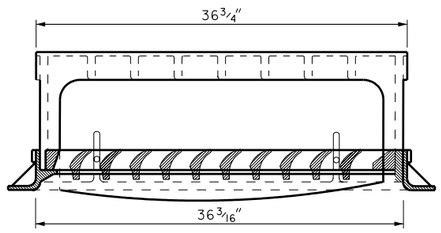
DGN File:N:\Esa\Standard Drawings\Imperial\2004Working\StandardsCommitteeFiles\October-2004\DG04.dgn
23-NOV-2004



SECTION B-B



PLAN



SECTION A-A

NOTES:

1. CAST GRAY IRON PER ASTM A 48 (AASHTO M 105 & M 306) CLASS 35B OR APPROVED EQUAL.
2. DIMENSION OF THE GRATE AND FRAME MAY VARY ± 5% OF SPECIFIED.

DESIGN DATA

HS-20 OR INTERSTATE ALTERNATE LOADING IN ACCORDANCE WITH AASHTO 17th EDITION SPECIFICATIONS.

REVISIONS			
NO.	DATE	APPR.	REMARKS
1	10/21/04	B.A.	NEW DRAWING

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

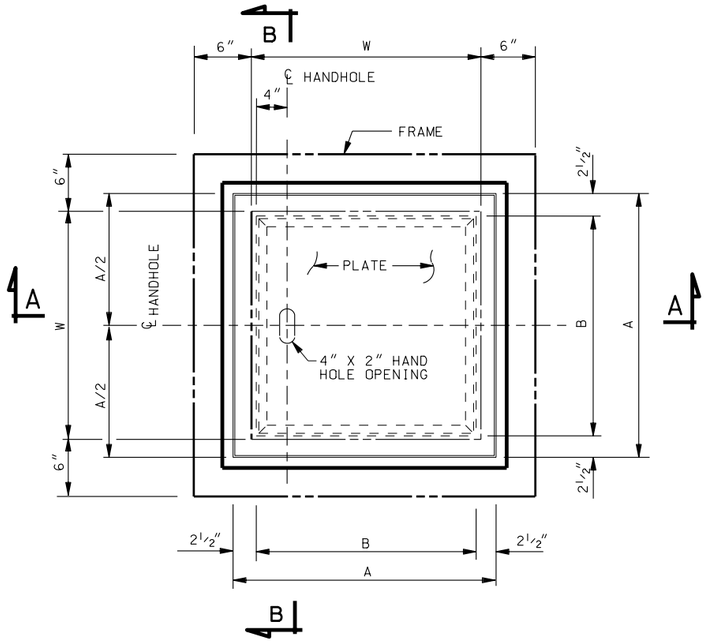
RECOMMENDED FOR APPROVAL — OCT.21.2004 DATE

CHAIRMAN STANDARDS COMMITTEE APPROVED — OCT.21.2004 DATE

DEPUTY DIRECTOR

OPEN CURB INLET GRATE AND FRAME

STD DWG
GF 13



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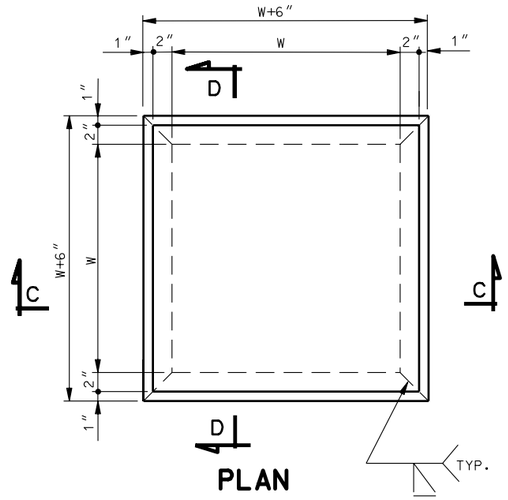

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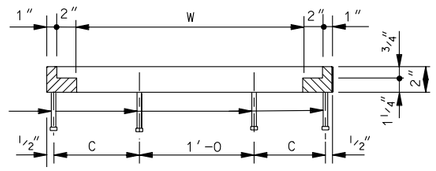
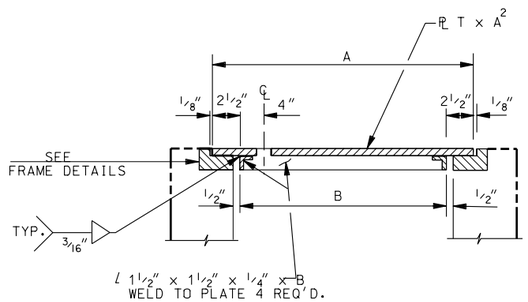
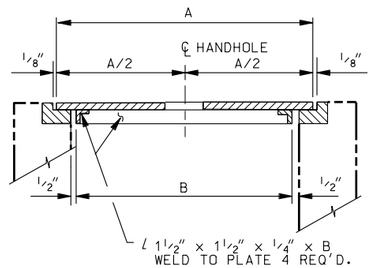


SECTION C-C
SECTION D-D SIMILAR

FRAME DETAILS



SECTION A-A



SECTION B-B

COVER DETAILS

DIMENSIONS					QUANTITIES (LB)		
W	A	B	C	T	COVER	FRAME	TOTAL
2′-0	2′-3¾	1′-10¾	8½″	½″	131	163	294
2′-6	2′-9¾	2′-4¾	11½″	⅝″	189	195	384

NOTE:

ALL STRUCTURAL STEEL: STRUCTURAL CARBON STEEL CONFORMING TO AASHTO DESIGNATION M 270, GRADE 36. AND HOT DIP GALVANIZE AFTER FABRICATION IN ACCORDANCE WITH ASTM A 123.

DESIGN DATA

THE DESIGN IS IN ACCORDANCE WITH AASHTO AND INTERIM SPECIFICATIONS:
Fs = 20,000 psi
LIVE LOAD - HS 20-44

REVISIONS			
NO.	DATE	APPR.	REMARKS
1	10/21/04	B.A.	NEW DRAWING. PREVIOUSLY CB 4.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — OCT.21.2004 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — OCT.21.2004 DATE
DEPUTY DIRECTOR

SOLID COVER FOR STD DWG DB 1 MS-18 LOADING

STD DWG
GF 14

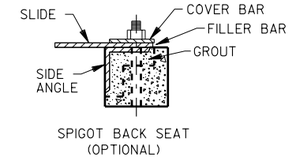
DGN File:N:\Eas\Standard Drawings\Imperial\2004Working\StandardsCommitteeFiles\October2004\GF14.dgn
23-NOV-2004

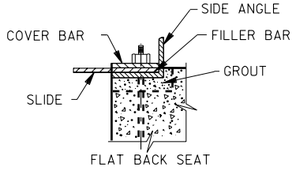
STANDARD SCREW GATE AND FRAME DIMENSIONS FOR 5'-0 OF HEAD OR LESS

SIZE OF CLEAR •• OPENING	A	18"	24"	18"	24"	30"	36"	48"	24"	30"	36"	42"	48"	24"	30"	36"	42"	48"	60"	24"	30"	36"	42"	48"	60"	72"	24"	30"	36"	42"	48"
	B	18"	18"	24"	24"	24"	24"	24"	30"	30"	30"	30"	30"	36"	36"	36"	36"	36"	36"	42"	42"	42"	42"	42"	42"	42"	48"	48"	48"	48"	48"
MINIMUM GATE DIMENSION	HEIGHT	18"	18"	24"	24"	24"	24"	24"	30"	30"	30"	30"	30"	36"	36"	36"	36"	36"	36"	42"	42"	42"	42"	42"	42"	42"	48"	48"	48"	48"	48"
	WIDTH	22"	28"	22"	28"	34"	41"	53"	28"	34"	41"	47"	52"	29"	35"	41"	47"	54"	67"	29"	35"	41"	47"	54"	67"	79"	30"	36"	42"	48"	54"
• FRAME HEIGHTS	5'	X	X	X	X	X	X		X	X				X	X					X	X						X	X			
	6'	X	X	X	X	X	X		X	X	X	X		X	X	X	X			X	X	X	X				X	X	X	X	
	7'	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X			X	X	X	X	X
	8'	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X			X	X	X	X	X
	10'	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
STEM DIAMETER		1.12"	1.12"	1.12"	1.12"	1.12"	1.12"	1.12"	1.12"	1.12"	1.12"	1.12"	1.50"	1.12"	1.12"	1.12"	1.50"	1.50"	1.50"	1.12"	1.12"	1.50"	1.50"	1.50"	1.50"	2.00"	1.50"	1.50"	1.50"	1.50"	1.50"
WHEEL DIAMETER		10"	10"	10"	10"	10"	14"	24"	14"	14"	14"	18"	24"	14"	18"	18"	24"	24"	30"	18"	18"	24"	24"	30"	24"	30"	24"	24"	24"	30"	30"

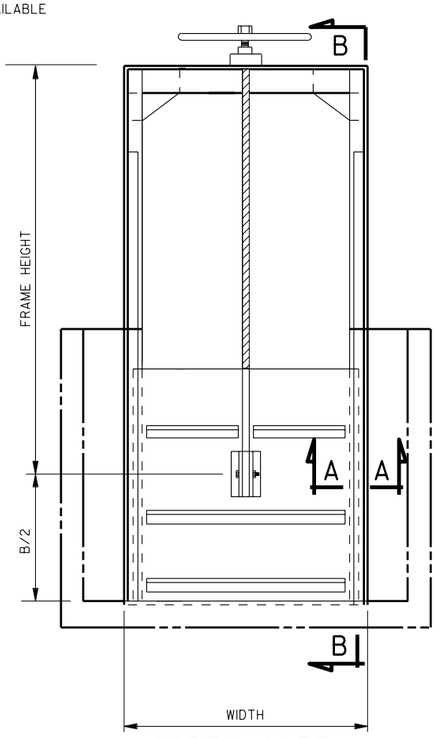
• X INDICATES THE FRAME HEIGHT OPTIONS AVAILABLE WITH THE SPECIFIC GATE SIZES

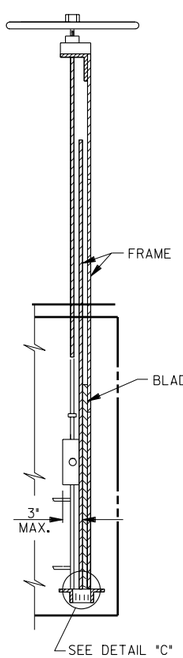
•• USE SCREW GATES SELECTED FROM THESE BASIC SIZE WITH EITHER FLUMES, ROUND PIPE OR PIPE ARCH INSTALLATIONS.





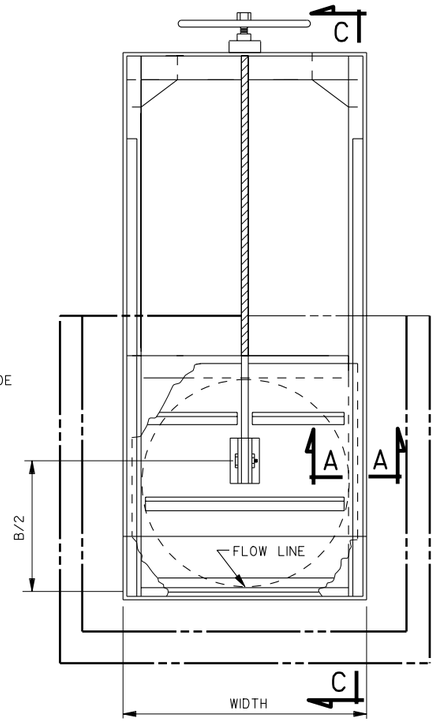
SECTION A-A

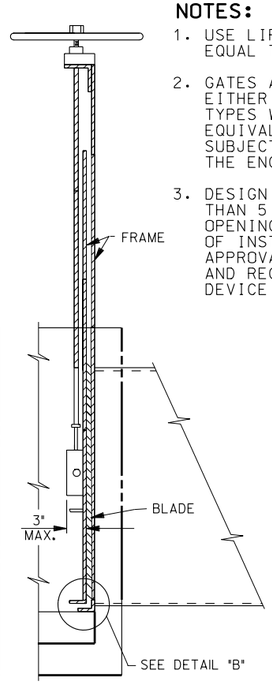




SECTION B-B

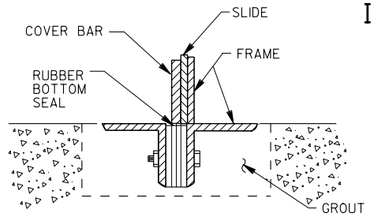
SCREW GATE INSTALLATION DETAIL FOR FLUME OUTLET



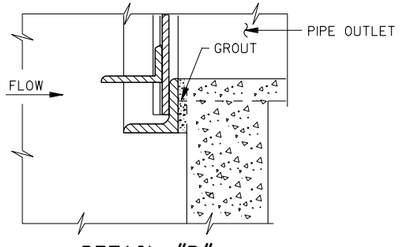


SECTION C-C

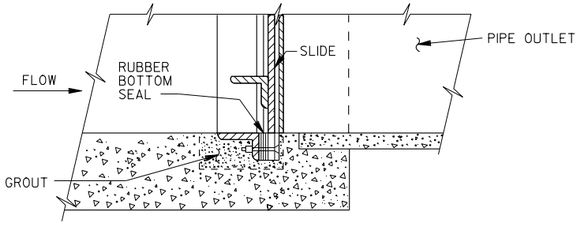
SCREW GATE INSTALLATION DETAIL FOR PIPE OUTLET
(ARCH PIPE INSTALLATION SIMILAR)



DETAIL "C"



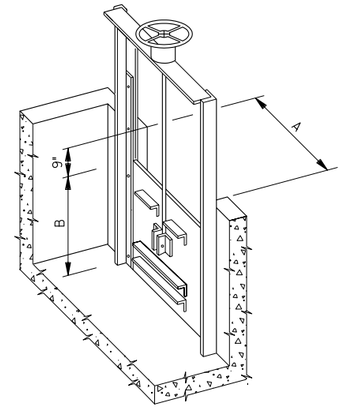
DETAIL "B"
(TYPICAL WALL SILL INSTALLATION)



TYP. PIPE FLOOR SILL INSTALLATION

NOTES:

1. USE LIFT GATE WHEN OPENING IS EQUAL TO OR EXCEEDS AN AREA OF 5 SQUARE FEET.
2. GATES AND FRAMES: OF THE TYPE SHOWN AND BE EITHER THE FLAT BACK SEAT OR SPIGOT BACK SEAT TYPES WITH A THROUGH FLUSH BOTTOM OPENING. EQUIVALENT GATE AND FRAME TYPES ACCEPTABLE, SUBJECT TO THE APPROVAL OF SHOP DRAWING BY THE ENGINEER.
3. DESIGN SLIDE GATES AND FRAMES FOR NOT LESS THAN 5 FEET OF FACE PRESSURE ABOVE THE GATE OPENING AND ZERO BACK PRESSURE. IN ALL CASES OF INSTALLATION, SUBMIT TO THE ENGINEER FOR APPROVAL THE MANUFACTURERS SPECIFICATIONS AND RECOMMENDATIONS TO INCLUDE LIFTING DEVICE TYPE.



FLUME OUTLET DETAIL

NO.	DATE	APPR.	REMARKS
1	10/21/04	B.A.	NEW DRAWING. PREVIOUSLY CB 5.

UTAH DEPARTMENT OF TRANSPORTATION
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SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — OCT.21.2004 DATE

CHAIRMAN STANDARDS COMMITTEE
APPROVED — OCT.21.2004 DATE

DEPUTY DIRECTOR

STANDARD SCREW GATE AND FRAME

STD DWG
GF 15

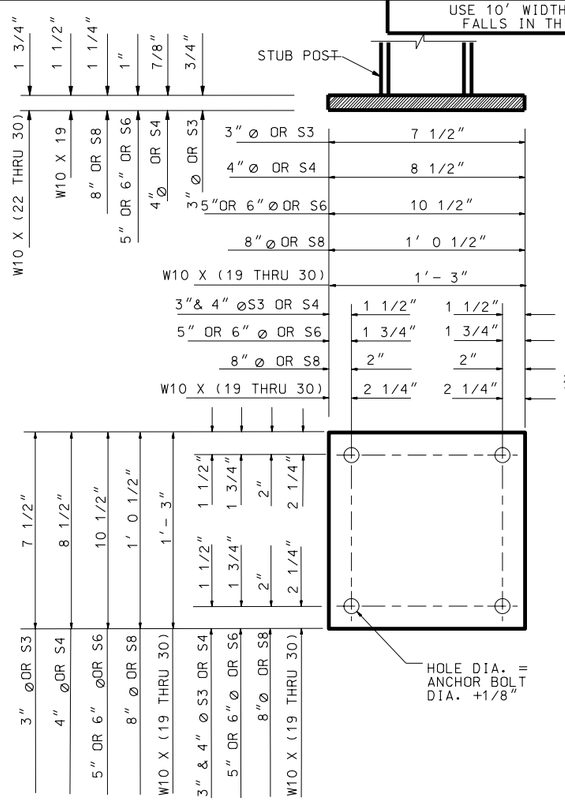
DGN File: N:\Esa\Standard_Drawings\Imperial\2004Working\StandardsCommitteeFiles\October2004\GF15.dgn
23-NOV-2004

VERTICAL SIGN DIMENSION (V)	HORIZONTAL SIGN DIMENSION (W)																				
	ONE POST PER SIGN					TWO POSTS PER SIGN											THREE POSTS PER SIGN								
	1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"	17'-0"	18'-0"	19'-0"	20'-0"	21'-0"	22'-0"	23'-0"	24'-0"
1'-0"	3"Ø 3'-0"	3"Ø 3'-0"	3"Ø 3'-0"	3"Ø 3'-0"	3"Ø 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"
1'-6"	3"Ø 3'-0"	3"Ø 3'-0"	3"Ø 3'-0"	3"Ø 3'-0"	3"Ø 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"
2'-0"	3"Ø 3'-0"	3"Ø 3'-0"	3"Ø 3'-0"	3"Ø 3'-0"	3"Ø 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"
2'-6"	3"Ø/ 3'-0"	3"Ø 3'-0"	3"Ø 3'-0"	3"Ø 3'-0"	3"Ø 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S6X12.5 3'-0"	S6X12.5 3'-0"	S6X12.5 3'-0"
3'-0"	3"Ø 3'-0"	3"Ø 3'-0"	3"Ø 3'-0"	3"Ø 3'-0"	4"Ø 3'-0"	S3X5.7 3'-0"	S3X5.7 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S6X12.5 3'-0"	S6X12.5 3'-0"	S6X12.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S4X9.5 3'-0"	S6X12.5 3'-0"	S6X12.5 3'-0"	S6X12.5 3'-0"	S6X12.5 3'-0"	S6X12.5 3'-0"
4'-0"	3"Ø 3'-0"	3"Ø 3'-0"	3"Ø 3'-6"	4"Ø 3'-6"	4"Ø 3'-6"	S4X9.5 3'-6"	S4X9.5 3'-6"	S4X9.5 3'-6"	S4X9.5 4'-0"	S4X9.5 3'-6"	S6X12.5 3'-6"	S6X12.5 3'-6"	S6X12.5 3'-6"	S6X12.5 3'-6"	S6X12.5 3'-6"	S6X12.5 3'-6"	S6X12.5 3'-6"	S6X12.5 3'-6"	S6X12.5 3'-0"	S6X12.5 3'-6"	S6X12.5 3'-6"	S6X12.5 3'-6"	S6X12.5 3'-6"	S6X12.5 3'-6"
5'-0"	3"Ø 3'-0"	3"Ø 3'-0"	4"Ø 3'-6"	4"Ø 3'-6"	5"Ø 3'-6"	S4X9.5 3'-6"	S4X9.5 4'-0"	S4X9.5 4'-0"	S6X12.5 4'-6"	S6X12.5 4'-0"	S6X12.5 3'-0"	S6X12.5 3'-6"	S6X12.5 3'-6"	S6X12.5 3'-6"	S6X12.5 4'-0"	S6X12.5 4'-0"	S6X12.5 3'-6"	S6X12.5 4'-0"	S6X12.5 4'-0"	S6X12.5 4'-0"	S6X12.5 4'-0"	S6X12.5 4'-0"	S6X17.5 4'-0"	
6'-0"	3"Ø 3'-0"	4"Ø 3'-0"	4"Ø 3'-0"	5"Ø 3'-0"	5"Ø 3'-0"	S4X9.5 4'-0"	S6X12.5 4'-0"	S6X12.5 4'-6"	S6X12.5 3'-0"	S6X12.5 3'-6"	S6X12.5 3'-6"	S6X12.5 4'-0"	S6X12.5 4'-0"	S6X12.5 4'-0"	S6X17.5 4'-0"	S6X17.5 4'-0"	S6X12.5 3'-6"	S6X12.5 4'-0"	S6X12.5 4'-0"	S6X17.5 4'-0"	S6X17.5 4'-0"	S6X17.5 4'-0"	S8X18.4 4'-6"	S8X18.4 4'-6"
7'-0"	3"Ø 3'-0"	4"Ø 3'-0"	4"Ø 3'-0"	5"Ø 3'-0"	5"Ø 3'-6"	S6X12.5 4'-0"	S6X12.5 3'-0"	S6X12.5 3'-6"	S6X12.5 3'-6"	S6X12.5 3'-6"	S6X12.5 4'-0"	S6X17.5 4'-0"	S6X17.5 4'-0"	S8X18.4 4'-6"	S8X18.4 4'-6"	S8X18.4 4'-6"	S6X17.5 4'-0"	S6X17.5 4'-0"	S6X17.5 4'-6"	S8X18.4 4'-6"	S8X18.4 4'-6"	S8X18.4 4'-6"	S8X18.4 4'-6"	S8X18.4 4'-6"
8'-0"	3"Ø 3'-0"	4"Ø 3'-0"	5"Ø 3'-0"	5"Ø 3'-6"	6"Ø 4'-0"	S6X12.5 3'-0"	S6X12.5 3'-6"	S6X12.5 3'-6"	S6X12.5 4'-0"	S6X12.5 4'-0"	S6X17.5 4'-6"	S8X18.4 4'-6"	S8X18.4 4'-6"	S8X18.4 5'-0"	S8X18.4 5'-0"	S8X18.4 5'-6"	S8X18.4 4'-6"	S8X18.4 4'-6"	S8X18.4 5'-0"	S8X18.4 5'-0"	S8X18.4 5'-0"	S8X18.4 5'-0"	S8X18.4 5'-6"	S8X18.4 5'-6"
9'-0"	3"Ø 3'-0"	4"Ø 3'-0"	5"Ø 3'-6"	6"Ø 4'-0"	6"Ø 4'-0"	S6X12.5 3'-6"	S6X12.5 3'-6"	S6X12.5 4'-0"	S6X17.5 4'-0"	S6X17.5 4'-6"	S8X18.4 4'-6"	S8X18.4 5'-0"	S8X18.4 5'-0"	S8X18.4 5'-0"	S8X18.4 5'-6"	S8X18.4 5'-6"	S8X18.4 5'-0"	S8X18.4 5'-0"	S8X18.4 5'-0"	S8X18.4 5'-0"	S8X18.4 5'-6"	W10X19.0 5'-6"	W10X19.0 6'-0"	
10'-0"	3"Ø 3'-0"	5"Ø 3'-0"	5"Ø 3'-6"	6"Ø 4'-0"	6"Ø 4'-6"	S6X12.5 3'-6"	S6X12.5 4'-0"	S6X17.5 4'-6"	S6X17.5 4'-6"	S8X18.4 5'-0"	S8X18.4 5'-0"	S8X18.4 5'-0"	S8X18.4 5'-0"	S8X18.4 6'-0"	W10X19.0 6'-0"	W10X19.0 6'-6"	S8X18.4 5'-6"	S8X18.4 5'-6"	S8X18.4 6'-0"	S8X18.4 6'-0"	W10X19.0 6'-0"	W10X19.0 6'-6"	W10X19.0 6'-6"	W10X19.0 6'-6"
11'-0"	4"Ø 3'-0"	5"Ø 3'-0"	6"Ø 3'-6"	6"Ø 4'-6"	8"Ø 5'-0"	S6X12.5 4'-0"	S6X17.5 4'-6"	S6X17.5 4'-6"	S8X18.4 5'-0"	S8X18.4 5'-0"	S8X18.4 5'-6"	S8X18.4 5'-6"	W10X19.0 6'-0"	W10X19.0 6'-0"	W10X19.0 6'-6"	W10X19.0 7'-0"	S8X18.4 5'-6"	S8X18.4 5'-6"	W10X19.0 6'-0"	W10X19.0 6'-0"	W10X19.0 6'-6"	W10X19.0 6'-6"	W10X19.0 7'-0"	W10X22.0 7'-0"
12'-0"	4"Ø 3'-0"	5"Ø 3'-0"	6"Ø 4'-0"	6"Ø 4'-6"	8"Ø 5'-0"	S6X12.5 4'-0"	S6X17.5 4'-6"	S6X18.4 4'-6"	S8X18.4 5'-0"	S8X18.4 5'-0"	S8X18.4 5'-6"	W10X19.0 6'-0"	W10X19.0 6'-0"	W10X19.0 6'-6"	W10X22.0 6'-6"	W10X22.0 7'-0"	W10X19.0 5'-6"	W10X19.0 6'-0"	W10X19.0 6'-0"	W10X19.0 6'-6"	W10X19.0 6'-6"	W10X22.0 6'-6"	W10X22.0 7'-0"	W10X22.0 7'-0"
13'-0"	4"Ø 3'-0"	5"Ø 3'-6"	6"Ø 4'-0"	8"Ø 5'-0"	8"Ø 5'-6"	S6X17.5 4'-0"	S8X18.4 4'-6"	S8X18.4 5'-0"	S8X18.4 5'-0"	S8X18.4 5'-6"	W10X19.0 6'-0"	W10X19.0 6'-0"	W10X19.0 6'-6"	W10X22.0 6'-6"	W10X22.0 7'-0"	W10X22.0 7'-0"	W10X19.0 6'-0"	W10X19.0 6'-0"	W10X19.0 6'-6"	W10X22.0 6'-6"	W10X22.0 7'-0"	W10X22.0 7'-0"	W10X22.0 7'-0"	W10X22.0 7'-6"
14'-0"	4"Ø 3'-0"	5"Ø 3'-6"	6"Ø 4'-6"	8"Ø 5'-0"	8"Ø 5'-6"	S6X17.5 4'-6"	S8X18.4 5'-0"	S8X18.4 5'-0"	S8X18.4 5'-6"	W10X19.0 6'-0"	W10X19.0 6'-0"	W10X19.0 6'-6"	W10X22.0 6'-6"	W10X22.0 7'-0"	W10X26.0 7'-6"	W10X26.0 7'-6"	W10X19.0 6'-6"	W10X22.0 6'-6"	W10X22.0 7'-0"	W10X22.0 7'-0"	W10X22.0 7'-0"	W10X26.0 7'-6"	W10X26.0 7'-6"	W10X30.0 8'-0"
15'-0"	4"Ø 3'-0"	6"Ø 3'-6"	6"Ø 4'-6"	8"Ø 5'-6"	8"Ø 6'-0"	S8X18.4 4'-6"	S8X18.4 5'-0"	S8X18.4 5'-6"	S8X18.4 5'-6"	W10X19.0 6'-0"	W10X19.0 6'-6"	W10X22.0 6'-6"	W10X22.0 7'-0"	W10X26.0 7'-6"	W10X30.0 7'-6"	W10X30.0 8'-0"	W10X22.0 6'-6"	W10X22.0 7'-0"	W10X22.0 7'-0"	W10X26.0 7'-6"	W10X26.0 7'-6"	W10X26.0 7'-6"	W10X30.0 8'-0"	W10X30.0 8'-0"
16'-0"	4"Ø 3'-0"	6"Ø 4'-0"	8"Ø 4'-6"	8"Ø 5'-6"	8"Ø 6'-0"	S8X18.4 5'-0"	S8X18.4 5'-0"	S8X18.4 5'-6"	W10X19.0 6'-0"	W10X19.0 6'-6"	W10X22.0 6'-6"	W10X22.0 7'-0"	W10X26.0 7'-0"	W10X30.0 7'-6"	W10X30.0 8'-0"	W10X30.0 8'-6"	W10X22.0 7'-0"	W10X22.0 7'-0"	W10X26.0 7'-6"	W10X26.0 7'-6"	W10X30.0 8'-0"	W10X30.0 8'-0"	W10X30.0 8'-6"	W10X30.0 8'-6"

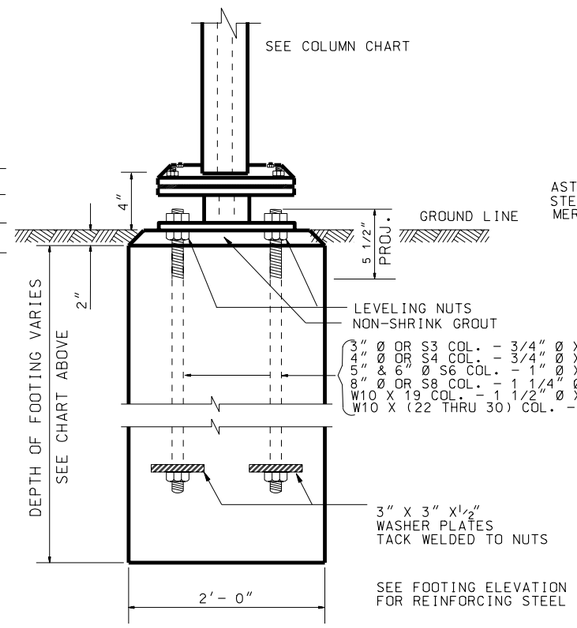
USE 10' WIDTH IF SIZE FALLS IN THIS AREA

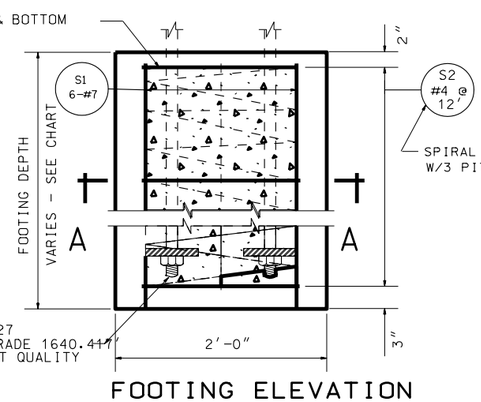
WIDTH W	SPACING FOR POSTS
1'- 5'	ONE POST
6'	1'* 4'* 1'
7'	1'* 5'* 1'
8'	1'* 6'* 1'
9'	1'* 7'* 1'
10'	1'* 8'* 1'
11'	1.5'* 8'* 1.5'
12'	2'* 8'* 2'
13'	2.5'* 8'* 2.5'
14'	3'* 8'* 3'
15'	3.5'* 8'* 3.5'
16'	4'* 8'* 4'
17'	1'* 7.5'* 7.5' * 1'
18'	1'* 8'* 8' * 1'
19'	1.5'* 8'* 8' * 1.5'
20'	2'* 8'* 8' * 2'
21'	2.5'* 8'* 8' * 2.5'
22'	3'* 8'* 8' * 3'
23'	3.5'* 8'* 8' * 3.5'
24'	4'* 8'* 8' * 4'

(*)REPRESENTS ONE POST



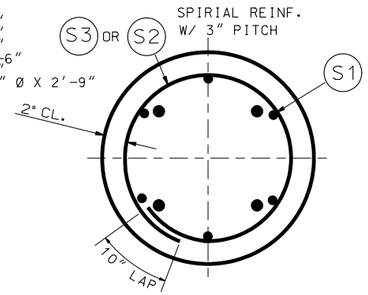
FOOTING DETAILS



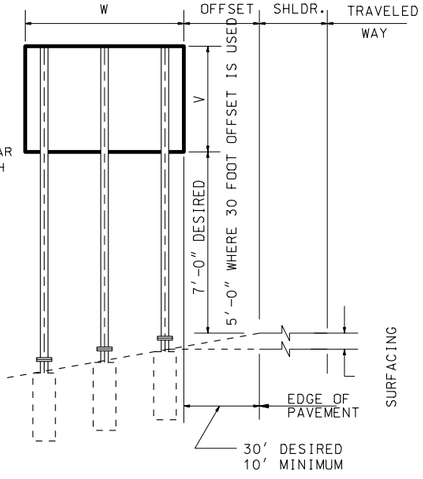


FOOTING ELEVATION

BAR	LENGTH
S1	FOOTING HEIGHT- 2"
S2	7"- 0"



SECTION A - A



REAR ELEVATION

NOTES:

1. ENTER CHART WITH KNOWN HORIZONTAL AND VERTICAL DIMENSIONS OF SIGN. PROCEED HORIZONTALLY AND VERTICALLY FROM GIVEN DIMENSIONS TO INTERSECTING SQUARE WHICH GIVES IN ORDER, TOP: NUMBER, SIZE AND WEIGHT OF SUPPORT SECTION OR OF STANDARD STRENGTH PIPE COLUMNS. BOTTOM: MINIMUM REQUIRED DEPTH OF FOOTING.
2. SEE STD DWG SN 12B FOR MATERIAL SPECIFICATIONS NOT GIVEN AND GENERAL NOTES.
3. DO NOT ATTACH SIGNS BELOW HINGE POINT.

REVISIONS

NO.	DATE	APPR.	REMARKS
1	10/21/04	BA	TABLE 10' VERTICAL, 14' TWO POSTS DIMENSIONS CORECTED.

UTAH DEPARTMENT OF TRANSPORTATION

STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — OCT.21,2004 DATE

CHAIRMAN STANDARDS COMMITTEE APPROVED — OCT.21,2004 DATE

DEPUTY DIRECTOR

GROUND MOUNTED SIGN INSTALLATION DETAILS

STANDARD DRAWING TITLE

STD DWG
SN 12A

DGN File:N:\Esd\Standard_Drawings\Imperial\2004Working\StandardsCommitteeFiles\October2004\sn12a.dgn
23-NOV-2004